POPULAR
Computing
WEEKLY

Only 50p.

4-10 December 1986

Vol 5 No 49

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FEATURES

Your last chance to enter the 1986 Readers' Poll

Atari Christmas Show – full report

Role playing on the ST with Phantasie – p31



GAUNTLET

From the arcades to your micro – the long-awaited Gauntlet, from US Gold, is now available



Read our full review on page 30

With monitor, data c
£100 of software yo u
(Until mummy catc h

With the Amstrad 464 home computer the fun starts as soon as you get it home

Because unlike many other home computers the 464 comes complete with its own green screen or full colour monitor

It also comes with a convenient built-in datacorder

And you get £100 worth of software with games like Harrier Attack and Sultan's Maze Not to mention Oh Mummy

64K of RAM means you have plenty of memory to play with And there are over 200 Amstrad games you can play, many exclusive to Amstrad

But games are only half the fun on the 464

The kids can learn spelling and arithmetic with software like Wordhang and Happy Numbers

Whilst adults will lov the way that it help around the hous with budgeting an accounts



corder and
u can't lose.
hes you.)
To help you make the most of your 464 you can join the Amstrad User Club
And there are lots of books and magazines devoted to it as well
What's more you can buy joysticks, printers, disc drives, speech synthesisers and light pens to make it even more fun
But perhaps the most pleasurable thing about the 464 is the price
The complete home computer costs just £199 with green screen or £299 with colour monitor
Not much to pay for a chance to get away from mummy
Please send me more information
Name
Address
The Amstrad 464.
The complete home computer
Amstrad PO Box 462, Brentwood, Essex CM14 4EF


THE ULTIMATE ROLE PLAYING FANTASY GAME
GAUNTLET
Enter the world of monsters
TAPE
CBM 64/128 Amstrad, Atari MSX £9.99
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CBM 64/128, Amstrad Atari £14.99
Amiga/Atari ST IBM £24.99
GAUNTLET
U.S. GOLD
ATARI

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ABC

How to submit articles Articles which are submitted for publication should not be more than 2000 words long The articles and any accompanying programs should be original It is breaking the law of copyright to copy programs out of other magazines and submit them here – so please do not be tempted We cannot guarantee to return your programs – so please do not send your only copy **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish although we will always try our best to make sure programs work

'Poor management' at Commodore claimed

BRICKBATS were flying last week between Commodore UK and its ex advertising agency Madell Wilmot Pringle which accused the computer company of poor management

The row started after MWP resigned the Commodore account just two months after competing with four other agencies to take Commodore on. In an article in the advertising industry magazine, *Campaign* MWP's planning director John Madell said that dealings with Commodore had been marred by late payment and "a singular lack of strategic direction and a idiosyncratic style of management that created a climate of uncertainty"

Commodore's general manager Chris Kaday was at

Kaday Sour grapes

first reluctant to reply to the accusations saying that he didn't think it was "fruitful to discuss it at all"

Later last week however Kaday made a statement "I regret to say that the comments made by John Madell appear to reflect nothing but sour grapes. I understand it has been reported that only a small proportion of their creative work has been used and that the company's promotional emphasis has shifted in favour of below the line work

Without wishing to comment openly concerning their input to our projected Amiga business advertising campaign I would say that we were forced to move this part of our promotion elsewhere"

Commodore's public relations company Harvard Marketing also said in respect of the allegations of bad management "Our total dealings with Commodore management reflects the position of a company with a range of outstanding business and consumer products backed by positive direction"

Meanwhile, on slightly less controversial topics Kaday announced that since Commodore began its promotional offers on the Amiga the machine has been selling "like a bat out of hell – we've probably sold more in the last month than in the previous six put together"

He also confirmed that Sidecar the IBM emulator for the Amiga would be released in the UK "And I am highly optimistic that it will be here by the end of the year"

● Commodore has now cut the price of the Amiga to £1 170 for a 256K machine. This is roughly in line with the price offered to existing Commodore users in the special offer

Intel slammed over marketing masterplan

GRIEF has come the way of Intel manufacturer of the chips that launched the IBM PC and untold numbers of compatibles. *Marketing High Technology an Insider's View* by William Davidow one time vice president (marketing) at Intel may not be altogether bad news but the review in the Economist is

"In the 8088 processor IBM picked not just the wrong family of microprocessors but the wrong Intel one. Crushing the competition is the name of the game – especially if all you have to offer is an inferior device. Intel took its minuses in performance and turned them into marketing pluses. It's inspiration was to realise that no matter how inadequate the device was the physical component represented only a fraction of the actual product." Oh dear



Lee Sean the Starlight

Lee's comeback

FRANCIS Lee the man who didn't quite bring us *Star Trek* during his tenure as Beyond's publisher has resurfaced as managing director of Starlight Software a new company operating out of Ariolasoft's London offices

Lee has set up Starlight to produce "top quality software on both 8 and 16 bit machines" and has signed an exclusive European distribution licence with Ariola

Although Lee only left Beyond in September Starlight's first two titles are currently in preparation

Storm breaks over Elite's budget label

THE budget label 299 Classics administered by the team which runs Elite Systems is being discontinued amid allegations of contract breaking by third party licensors

The label was set up by Foundry Business Systems from the same premises as Elite to release back catalogue product from a number of independent companies at £2 99

Microsphere's *Skooldaze* Durell's *Scuba Dive* and Micromega's *Full Throttle* all achieved chart success for a second time as part of the 299 Classics label

Elite boss Steve Wilcox is reported to have claimed that managerial staff were not available to cope with the extra work involved in the 299 Classics range

However two of the companies which licensed games to 299 Classics have stated that they have taken legal action against the company

"We made three of our titles available to 299 Classics on the understanding that they would be released within six months" said Luke Andrews of Vortex. "One *Tornado Low Level*, was released but the other two were not. We have issued a summons and it is now in the hands of our solicitors

Additionally I was not aware that we had been dealing with Foundry Business Systems – I had thought the label was part of Elite"

CP Software's Chris Whittington whose chess title, among others was taken on by 299 Classics said "We have taken out a writ against Foundry Business Systems for alleged non payment of monies"

Steve Wilcox of Elite and Foundry Business Systems was not available for comment as *Popular* went to press

Spectrum Plus 2 loading problems?

THE performance defect found in the Spectrum Plus 2 by Boots quality control department (see last week's issue) may not have been as widespread as was first thought. Boots and Amstrad remain tight-lipped on the subject, with Amstrad still denying all knowledge of the problem, but several W H Smith stores hadn't experienced particularly high return rates on the machine.

Boots' first models had trouble with poorly aligned reading heads, but although this has been fixed the machine still lacks volume control and an external tape port, so a prog problem can't be cured by adjustment.

Various other problems have been reported. The machine's non standard joystick ports make it incompatible with many of the games currently on the market which use Kempston protocols. Boots is dealing with this by bundling a Kempston interface with the machine.

Other problems reported include a drifting TV signal and incompatibility with peripherals, but it's not yet clear whether or not these are widespread.

Uridium 'clone' puzzle

HEWSON Software is considering action over the marked resemblance between Audiogenic's *Psycastria* and Hewson's *Uridium*. Andrew Hewson says he's aware that the two look similar but won't comment on the matter.

It's not, however, clear if Hewson has any case, as the two products are differently coded. Any action would therefore have to be based on story line and/or screen design, and as yet there's no legal precedent for this in the software industry.

"Andrew Hewson did contact us," says Audiogenic managing director Martin Maynard, "and suggested that he was going to come up and visit us. We wrote to him and asked him to define what there was within the program that he thought was copyright infringement and he's been unable to come up with anything."

Maynard feels that Psycastria is simply the latest in a long time of shoot 'em up games with scrolling backgrounds, and that Uridium is as much based on preceding titles as it is.

Acorn pulls off masterstroke



Compact: Beat off rivals

ACORN has won an order worth nearly £1 million to supply Master Compact and Master 128 machines to Poland.

The 1500 Master Compacts and 200 Master 128s plus disc drives and monitors are going to PZG, a miners' cooperative organisation in the industrial area of Kowlice. Acorn is also selling software for the machines to PZG – these will include games, education and utility programs for the machines.

According to Acorn, Amstrad and Commodore also competed for the contract.

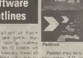
Software Hotlines

Since the advent of home computers and games machines the coin-op makers have had a hard time on their hands keeping ahead of the competition. One way to keep the punters flooding in was to use expensive ... cabinets (such as *Star Wars* or *Discs of Tron*) to heighten the tension ... and these have gradually evolved into games such as *Hang On* (which has you actually leaning a bike over to control your on-screen image) and *Space Harrier* (hydraulically operated seat that responds to the movement of your joystick).

You can now add **Konami's** *WEC Le Mans 24* to that list of sensation seekers – a sit-down coin op that is said to leave all the others standing – literally. A single screen motor racing simulator, this will fling you from side to side, bump you up and down as you scrape the kerb, the works.

It's already set the arcade trade alight, so expect it to make an appearance in your arcades soon. But who's going to be silly enough to try and do a Spectrum version, I wonder?

Certainly not **The Edge**, I bet – far too sensible a bunch of human beings. They are just about to release *Palitron*, a game written for them by Charles Goodwin, heavily involved with such Virgin hits as *Strangeloop*.



Palitron

Palitron may look rather like any other 3-D perspective save-the-world job, but has a novel aspect in that much of the game revolves around your Servo Class C27 robot programming various Infra Class Mark 3 robots scattered around the place using a mini logo.

Sounds like it has enough originality to warrant a look. Out soon on Amstrad, £8.95 (tape), £14.95 (disc).

At last – an *Arcanoid* clone for home micros. This brilliant *Breakout* variant hit the arcades about six months back. Like *Breakout* you have a paddle and must rebound a ball against a wall, knocking out bricks as you do so (the original was designed by Apple founder Steve Wozniak, you know). *Arcanoid* carries this format on, but the walls have many different shapes, pills can be collected that give you extra powers and monsters appear from time to time and generally get in the way.

Now **CRL** is producing a game which looks like it contains many of the same elements. Called *Ball Breaker*, it should be out in the New Year on Amstrad, Commodore 64 and Spectrum, priced £7.95 (tape) and £14.95 (disc). Knockout.

John Cook

WEC Le Mans 24


Clough plans cup run

Elite makes a comeback on BBCs

AFTER two years of relative neglect Acornsoft redirected its attention to *Elite*, this time under the auspices of Superior Software

Superior teamed up with Acornsoft prior to the launch of the Master Compact to develop software for the machine but *Elite* is now to be offered on the Master Electron 6502 second processor Master Turbo and the BBC B The Electron program is an improvement on the version Acornsoft released for Christmas 1984

Elite has been one of


New look Electron *Elite*

Acorn's more spectacular missed opportunities The company launched the program in autumn 1984 but showed no sign of wanting to release it on any machines other than the BBC B and the Electron

Firebird filled the gap buying up the rights for 64 Spectrum and Amstrad among others (an Apple II version is sold in the US) and although this cost a substantial sum *Elite* remains Firebird's most successful title

CDS is over the moon with Brian Clough's Football Fortunes

CDS's latest release represents a departure for the company – a computer assisted board game entitled *Brian Clough's Football Fortunes*

The game is something of a cross between *Monopoly* and *Football Manager*

Your playing pieces move around the (non-computerised) board where you can buy and sell players accept sponsorships fork out the wages and so on while the computer works out the match results and league tables

Computer-assisted board games haven't traditionally been successful but *Fortunes* is well designed and could well break the mould

Although Clough the manager of Nottingham Forest for the past twelve years has lent his name to the program he took no part in its design which was done entirely within CDS

Brian Clough's Football Fortunes goes on sale in the middle of January and will be available for the Commodore 64 Atari 8 bits Amstrad CPC and PCW and BBC/Electron at £14 95 cassette and £17 95 disc and £24 95 on PC compatibles Apple II and Atari ST

Free Microfair tickets

THE next ZX Microfair will be something of a double celebration – not only is it the Christmas show but also the 21st Microfair

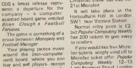
It will take place at the Horticultural Hall in London SW1 near Victoria Station

Normal entry price is £2 but *Popular Computing Weekly* has 200 tickets to give away to readers

If you would like free Microfair tickets simply send off to Microfair ticket offer *Popular Computing Weekly* 12–13 Little Newport Street London WC2H 7PP enclosing your name and address on a blank envelope You do not need to put a stamp on the envelope addressed to yourself

No more than two tickets per person please and they will be sent out on a first come first served basis

Time is short so please make sure your application reaches us by Tuesday December 9 to ensure we can get them to you in time


You too could be there

Footnotes

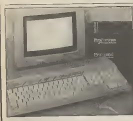
YOU can always tell when a company has fallen into the clutches of a certain kind of PR company Various geezers you've never heard of start lashing out calling for inquiries drivelling on about what they had for breakfast and so on

Step forward Stewart Bell newly installed managing director of Microprose's UK arm In one short week he's said how happy he is to have set up the company HQ next door to (or was it 20 miles away from) Charles and Di and he's lashed out at the shoddy product the software industry is issuing today

The problem is that there are too many software houses around who are apparently working on the assumption that end users have IQs less than orang-outangs What does he mean? Do you know anybody who has an orang outang? Who are these software houses who think micro owners have orang-outangs? Whatever Bell doesn't seem to reckon there's an orang outang market out there

Sinclair User clearly has an idea what the public wants although if it's model tanks one wonders why they're reading computer magazines The mag's recent "Win a Tank" competition asks you to name the two American tanks named after generals Tricky question this but we reckon the answer is Patton and Grant and the other two are named after Sir Alfred Sherman the well-known monetarist maniac and Francis Lee the well-known amicable departure

Tatung UK meanwhile has an eye for the odd creative mispelling *Jet Set Willie II* (sic) is due out soon for the Einstein alongside *Harvey Smith Showjumper* The latter is no doubt related to the reference to the Gallop charts in the same announcement



Atari comes out shooting

PERHAPS it isn't surprising that computer shows take on the character of computer owners.

The range is enormous — from the cheap and cheerful ZX Microfairs through the very middle of the road Amstrad shows to the stolid and worthy respectability of Acorn events.

Atari shows however are for headbangers and last week's event in London was no exception. Immediately inside the door you were bombarded by images of diving aliens, screeching lasers, roaring Formula 1 engines and swooping Ninja warriors, all to appropriate screaming sound effects.

To cap it all, the show organisers saw fit to broadcast dire renditions of Christmas carols while a robot clad in red suit and white whiskers went AWOL from Santa's Grotto and barged up and down the aisles mowing down innocent bystanders.

The impression may be unfortunate given Atari's efforts to leave this image behind. Perhaps it's only because the company decided to emphasise 'entertainment' at this pre Christmas show.

Or it may signify a shift in policy due to the recent arrival of some of the men who took a business computing company like Commodore and turned it into the world's leading manufacturer of entertainment computers.

On the Atari stand itself there were STs running a communications demo (ie playing MUD), there were old 2600 games consoles running old 2600 games like *Centipede*, *Star Raiders* and *Pole Position*.

There were brand new 7800 games consoles running old 2600 games. The only obviously new software was *Xevious* — but dammed good it was. Software that takes advantage of the 7800's facilities may take a while to arrive but it should be worth waiting for.

On the Llamasoft stand the Hairy Yak himself demonstrated his role as headbanger par excellence showing off *Colourspace* to excellent effect while the tunes of Jean Michel Jarre threatened to bring the stand down around his ears.

But it wasn't all like this. Hidden away among the hordes of joystick thrashers and keyboard bashers were a few gems.

On the Atari stand itself could be seen the outstanding ST version of SubLogic's *Flight Simulator II*. In addition to the incredible graphics, and a number of advanced features (like autopilot modes) the ST implementation allows you to hook two STs together and enjoy a two player dogfight.

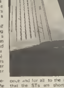
Microdeal demoed something called *Journey into the Lair*. You take the ST software, the laser disc version of *Dragon's Lair*, hook everything up to a laser disc player and away you go.

In any location you select an action (OPEN DOOR, FIGHT DRAGON) and the ST displays the appropriate sequence of animation from the laser disc. The end result is an adventure game with the animated graphics of the arcade game.

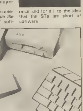
For the £99 price tag, you get the ST software and a copy of the *Dragon's Lair* laser disc. Of course, you need to shell out £500-plus on the disc player as well.

Also on the Microdeal stand was *Karate Kid II* — the officially licensed version of the movie. It's just another kick 'em senseless game but the graphics and animation are worth seeing.

Perhaps the single most impressive item at the show was Silica Shop's ST software list which puts paid



once and for all to the idea that the STs are short of software.



On the down side of the show a couple of items caught the eye. First ST owners should watch software pricing. Some companies appear to be selling US imports at prices anything up to £15 over the odds. One company was asking more than £40 for an Infocom game that Silica Shop is selling for £29.

Second, the much talked about, long awaited Mac Emulator was on sale at the Robtek stand. However the company was unable to show it working and could not supply one for review. Until you've read a full review you may want to hold on to your money. **Peter Worlock**

DIARY DATES

DECEMBER

13 December
21st ZX Microfair
Royal Horticultural hall London SW1
Details Premier show for the Sinclair community Add one software bric a brac stalls
Price £2
Organiser Mike Johnston 01 801 9172

JANUARY

9 11 January
8th Official Amstrad Computer Show
Novotel Hammersmith London W6
Details The year kicks off with the first of an ever increasing wave of Amstrad shows Hardware software the works for CPCs and PCWs with early support for the PC to be expected
Price £3 adult £2 children £1 discount for advance booking
Organiser Database Exhibitions 061-456 8835

FEBRUARY

17 20 February
Which Computer? Show
NEC Birmingham
Details Mainly business exhibitors includes Commodore, and low-cost PC clones
Price £6
Organiser Cahners Exhibitions 01 891 5051

26–28 February
The Atari Computer Show
Novotel London W6
Details First chance for Atari to show off the exciting new strategy it's allegedly working on
Price £3 adult £2 children £1 discount for advance booking
Organiser Database Exhibitions 061-456 8835

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser

Budget suite from Psion . . .

PSION is joining the low cost PC software producers with *PC Four* a suite of business programs based on its *Xchange* package but priced at £69

The four programs included are *PC Quill* (word processor) *PC Archive* (database) *PC Abacus* (finance planner) and *PC Easel* (business graphics)

While these are the same titles as the programs included in *Xchange* (and developments from Psion's suite of programs supplied free with the QL) Psion has removed facilities such as networking and multiple task-handling to keep the price down

Details from Psion at Psion House Harcourt Street London W1H 1DT

Ceefax-based programming

BBC owners will be available to create their own programs using information from Ceefax, with a new series of programs from BBC Telesoftware

Starting in February next year these programs are free to anyone with a BBC and teletext adaptor

The aim is to provide the techniques of using Ceefax information as data within Basic programs

Details from Jeremy Bradshaw Telesoftware Organiser BBC Enterprises Room A3080 Woodlands Wood Lane London W12 0TT Tel 01 576 0563

Compile with C

CA Special Products has now released a C compiler to run on its Casper 68000 second processor for the BBC machines

Control C is supplied on either 40 or 80 track discs and takes up about 32K of Ram It costs £99 plus VAT

Details from CA Special Products at Moss Way Donibristle Industrial Estate Dunfermline KY11 5JW

. . . and more from Compsoft

COMPSOFT'S budget range for the Amstrad PC1512 is now available through First Software The range comprises versions of Compsoft's full price professional packages with most of the features intact

These include *Budget Delta 4* database at £99 95, and *Deltegraph* a companion graphics program at £69 95

Details from First Software at Intec 1 Wade Road Basingstoke Hants RG24 0NE

ST business graphics pack

KUMA has enhanced its K Graph business graphics package for the Atari ST with the release of K Graph 2 a new version of the company's successful business graphics program

The new package allows users to produce charts and graphs making use of Gem's windows and pull down menus It allows up to four graphs each showing different data to be displayed simultaneously The package's main new features are maths and trig functions a save graph function print/rename datasets statistics area graphs and variable x and y origins

Both this and the original version featured sideways printing options selective screen dumps enlargement and reduction and automatic scaling of graphs and charts

The new package costs £49 95 and owners of the old version can upgrade for £10

Details from Kuma 12 Horseshoe Park Pangbourne Berks RG8 7JW Tel 07357 4335

Domark launches trial by trivia

AFTER an apparent PCW software dearth Domark has filled the breach with a conversion of its new hit *Trivial Pursuits*

The game is a faithful reproduction of the original featuring high resolution displays and adding music questions to the original although the PCW's basic sound facilities make this trickier than you might expect It costs £19 95



SpecDrum/ Amdrum
£29.95 £34.95
Sweet Talker
£24.95
Mega-Sound
£10.95
Spectrum Joystick Interface
£9.75
Sound Sampler
£44.95
Midi Interface
£49.95
Cassette/Data Recorder
£24.95
MK5 Midi Keyboard
£99.95
Peripheral Power
Mach I+ Joystick
£14.95
125+ Joystick
£8.95
R.A.T. Remote Action Transmitter
£19.95
+2 Selector Connector
£2.99
56 Way Extension Connector
£7.95
Aerial Splitter
£2.25
Spectrum128 +2 to Midi Lead
£9.75
Split Extension Connector
SPECTRUM AMSTRAD
£10.99 £11.75
Cheetah Marketing
FAX 0222 779404

Letters

The Interface question

Do Interface One with microdrives and the Plus 2 Spectrum really go together? Overcome by the vision of a home micro with Sinclair logo over a handsome keyboard I bought a Plus 2 and this was my first concern The reviews abseil over it and the question perplexing the elephant in love with the mouse – how? – is not attempted

The manual is curt (three lines on page 201), saying The Interface One and microdrives are connected to the expansion I/O socket at the rear of the Plus 2 Untrue of course You have to connect them and how you do it is your problem No reference is made to the radically altered physique of the Plus 2 as against its forerunners

The wedge-shaped Interface One was pulled back on to and under the old Spectrum while two protruding captive screws reached up and through to the pcb mountings, holding the interface firm against edge connector wobble

If you choose to connect the Plus 2 in the same way you will need to remove these screws to allow a snug fit as there is no provision for receiving these or any screws through the base of the Plus 2 This is easiest done by separating top and bottom housings of the interface The front left rubber foot of the Plus 2 must be removed for the same reason This is a push-in grommet and can be pulled out intact The I/O port connection is made simply enough by pushing the I/F on to the edge connector with no clearance problems for instance

You now however have the large Plus 2 poised cornerwise over the smaller interface secured only by the edge connection itself This is an invitation to the wobbles fit to be set to music by Weber In the event sticking strips of Blu Tack around the edges of the interface abutting against the Plus 2 and building up a surgical boot at the Datacorder end of the computer give a perfectly stable assembly Unfortunately microdrive one now obstructs the Joystick ports at the left edge of the micro

The obvious alternative is a 56 way extension cable from the rear port to Interface One This means another edge connection and the threat of spaghetti spread However, I have settled for this in the meantime with a DKtronics cable for £10 from High Voltage

And the verdict? The Plus 2 does indeed work fully with the microdrives in both 48 and 128K modes, and their speed is a true relief in comparison with the built in tape recorder

But there is an inordinate delay needed for warming up At switch on from cold there is no response to microdrive commands The drive whirls around in dumb idiocy Leave the computer switched on and try again in not less than half an hour and response has become normal In contrast direct entry and tape operations work instantly on start up

I have not been able to confirm if the fault is general or unique to my Plus 2

Interface and drives still work perfectly with my old Spectrum The condition if incurable is a great pity because this is otherwise a very good machine perhaps the best value in new machines for this kind of money and a natural to work with microdrives I would be grateful for any suggestions readers may have to bring my microdrives in from the cold

George Watson
Croydon

Reset routines

After reading Peek and Poke in *Popular* a couple of weeks back I noticed you gave someone instructions on how to fit a reset button on a Commodore 64 I have used one of these buttons for a very long time and have found the following routine very useful for getting a Basic program back after a *New* or a reset

Clear the screen enter the code below exactly making sure it starts from the top left hand corner, and then type *SYS1024 [Return]*

```
[illegible]
```

You should now find you have your Basic program back, all intact and working

To keep the routine in memory repeat the first two steps above then

```
FOR 1=53200 TO 53223 POKE I
(I 52176) NEXT [Return]
```

Then *SYS53200* will run the routine

Simon Hall
Dorking

Readers respond

With reference to the letter from H P M Keegan published in *Popular* November 20 regarding printing with a QL and Serial 8056 printer enter the following commands directly

```
baud 1200
open #3 ser 1
list #3
```

This will enable a program to be printed on to the printer After modifying the program or listing again just enter the *List* command To list specific lines of a program enter *List #3 20 100, 120* (whichever lines you need)

To print variables from within a program you would need the baud statement and an *Open #* (any number between three and 15 nought to three being set initially by the QL but they can

Puzzle

Puzzle No 236

When Professor Otto Hex purchased a ticket for the Scouts raffle he was quite optimistic that he had the winning ticket

The serial number on the ticket is 92727 he observed and this number is equal to the sum of the fifth powers of each of its digits He jotted down the calculation and checked that this was indeed the case

$$3^5 + 2^5 + 7^5 + 2^5 + 7^5 = 92727$$

The professor s keen mathematical mind had rooted out this peculiarity and he was convinced that this was a good omen Assuming this was the case can you find any other five digit numbers that also follow this rule?

Solution to Puzzle No [illegible] 231

Answer After Christmas Day 1986 all four men will not meet until 15th March 1990

In the program the number of days in each month is held in the array M(12) Line 40 gives the starting values of the variables DTE is the date MTH is the month DAY is the day of the week (Sunday = 1 to Saturday = 7) and C is the eight-day cycle which governs Dr Dimkin s visits

The conditions governing each member s attendance are checked in lines 50 to 80 When all conditions are favourable the date is printed out

Finally lines 100 to 140 increment each of the cycles independently

```
[illegible]
```

Winner of Puzzle No 230

The winner this week is Peter Thornthwaite of Bexleyheath Kent who will be receiving £10

Rules

The closing date for Puzzle 236 is December 22nd Answers on a postcard please

be used)

To print *Print #3 A$ B$* for example would print whatever value was held by *A$* and *B$*

With regard to the other problem of not being able to print with three of the Psion programs I presume Mr/Ms Keegan ran the program *Install_Bas* to set up the printer for the QL the same needs to be done for the *Abacus* and *Archive* cartridges, as follows

```
COPY mdv1 printer_dat to mdv2_printer_dat
```

with the *Quill* cartridge in the left drive and *Archive* or *Abacus* in the right drive If it says that the file already exists enter *Delte mdv2_printer_dat* (without removing any cartridges) and do the *Copy* again

Recol unfortunately requires graphics being printer which can t be done The QL manual suggests photographing the screen!

R S Shrimpton
Aylesbury

Thanks to Kenneth Ross, M H Mottram, George Watson, John Turner and Neal Card, who also wrote in to rescue H P M Keegan – all your letters have been forwarded to him/her

And there s no problem over crowd violence!

BBC not forgotten

In your Games reviews, November 13 you clearly stated that, BBC owners – at least as far as games playing goes – are almost a forgotten breed these days This is not true

There are loads of great games around for the BBC now *Trivial Pursuit Thrust, Green Beret Ghosts and Goblins Kane Spy Hunter Airwolf, Mikie Bombjack* and many others toonumerous to mention

Any game that is good always gets converted to BBC

James Oliver
Sunderland

Parroting about piracy

Further to Robert Baker s letter in *Popular* October 30 may I just add that if Amstrad feels so strongly about tape piracy then what on earth is it doing selling audio equipment with twin cassette decks, obviously meant for copying tapes?

M Pike
North Yorks

Small consolation

In your October 23 issue you carried an article on the Sega Master system claiming that it could spell the end for the humble 8 bit home computer How can you possibly make this conclusion? The system offers no facilities not available on existing home micros and is no cheaper

Your main point of interest seemed to be the system s video chip which you described as An outstanding asset only the Commodore 64 comes anywhere near this standard

Well firstly the graphics in your screen shots didn t look all that impressive anyway and secondly on reading your description I was surprised to find that you were reeling off the exact specifications of the old MSX mark one video chip with the exception of the 32 colour pallette

Think I m crazy? Well it might surprise you to know that Sega do make MSX computers although they re not sold here and of course with 256 sprites 32 on screen at once in four different sizes, the MSX computers do indeed beat the Commodore

Also you mentioned the choice of cartridges or beecards which again normal MSX computers have including cartridges with 128K Ram

So in short far from being a superior games machine the Cega appears to be a fairly average machine with none of the advantages of a normal home computer Unless the other game consoles being released can do considerably better it s hard to see any threat to the home micro industry as we know it

Graham Steadman
Woking

The games consoles will be priced at around £80, which is considerably cheaper than any home computer currently being manufactured At that price and with cartridge costs coming down, they could well appeal to the games players now using 8-bit micros

Oric bytes back

It seems there has been a large quantity of people writing in to *Popular Computing Weekly* in recent issues singing the praises of the Oric Atmos micro and lamenting the lack of a good disc interface or support for their systems

I would be grateful if you would bring to the attention of your readership the fact the Byte Drive 500 disc systems for the Oric (48K models only) are now back on the market at £159 50 (around half the original price) including disc interface 3 inch disc drive and power supply together with the very latest version of Byte Drive DOS which brings the standard of the Oric s Basic almost to a par with the BBC Micro in terms of flexibility and facilities including ten programmable function keys random access disc files *While/Wend* loops text windows command abbreviation facilities and much more whilst taking up less space than the original Byte Drive DOS Up to four disc drives of any type described as BBC compatible (including 3 inch and $5\frac{1}{4}$ inch types) are supported

If any users are interested (or if there are any Byte Drive 500 users who have not yet been in contact) please would they write to BDUG at the address below – the users group has been running well over a year now and provides enthusiastic and owner oriented support for the system

Jeremy Hibbins
Byte Drive Users Group
Ashley House
Onslow Road
Sunningdale
Berks SL5 0HW

Fair warning

A warning to Commodore MPS801 printer owners There is a new style printer ribbon currently on sale This is easily distinguished by the lack of an inker set into the bottom of the cassette

The new ribbon cartridge is based on the typewriter and is crammed with pre-inked ribbon which is great when the typewriter print head descends with some force but is useless in a dot matrix printer the resulting print being a grey almost unreadable text I have tried out several of the new style ribbons all with the same result

The original MPS801 cassette contains a short loop of ribbon which is freshly inked with each revolution

J Holmes
Glasgow

Confused by QL cables

The QL supplement in September contained an advertisement by WD Software for an extension cable to connect ZX Microdrives to the QL

The *QL User Guide* states that ZX Microdrives are unsuitable Can you comment please?

R Climie
Lanarkshire

According to WD Software, nine out of ten ZX Microdrives will work OK on the QL with its cable WD says it will refund customers' money if they buy the cable and then discover that it doesn t work.

An honourable Citizen

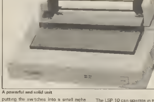
Peter Worlock finds the Citizen LSP 10 to be a reliable new printer

Not so long ago the main problem facing anyone who wanted a printer was how to raise the money to buy one Especially for home computer users since most printers cost more than the computer itself

Now however the problem is how to choose one make and model from the many available Prices have fallen as quickly as print quality has arisen

Although few printer manufacturers are household names Citizen is probably among the lesser known names after the likes of Epson Star and Brother But the company has built a reputation for quality and value in the past year or so

Among its current line of printers is the LSP 10 a medium-priced model with features that put it well up among the higher-priced competition



A powerful and solid unit

Features

Construction is to a very high standard in stylish off white and the dimensions have been kept small – 15in wide 10in deep, and a mere 3½in high

The print head is a nine pin model giving characters of 9 × 11 dots in normal mode and 17 × 17 dots in NLQ (Near Letter Quality) mode

Print speeds are reasonable – 120 cps in normal mode 25 cps in NLQ Noise levels are also acceptable although in graphics mode the printer starts to screech a little Most dot matrix printers suffer the same fault however

As far as the major bane of printer users is concerned – dip switch settings – Citizen has taken the middle line putting the switches into a small niche under the print head carrier bar This is more convenient than the old Epson method which involved dismantling the entire printer to change a switch but not as handy as having the switches on the outside of the printer casing

Printing in bold gives a nice effect, <u>underlining is easy,</u> *and when combined with italics* ***<u>it produces this sort of correspondence.</u>***

The LSP 10 can operate in two modes – selected by dip switch – emulating either an Epson or an IBM Pro Printer

All other standard features are supported including emphasised double strike italic expanded and condensed print modes multiple-density graphics and downloadable character sets

An optional tractor feed is included in the package as are paper guides for single sheet feed

The printer comes fitted with a Centronics style parallel interface Optional facilities – at extra cost naturally – include an RS232 interface at £54 and a multiple sheet feeder at £95

Finally the documentation is well written and comprehensive with lots of examples and a handy tear-out reference guide to central codes



The LSP 10 – quiet as a mouse

Conclusion

The LSP 10 is a well made machine with features that pitch it firmly into the mid range of current printers However at the price it represents good value for money in this very comprehensive area

It s probably too expensive – and too powerful – for the job of churning out your program listings but is ideal for heavy duty word processing and graphics use

The standard of construction holds out the promise of good reliability and something to note in this respect – Citizen offers a two year warranty on its printers which should do a lot for your peace of mind

Peter Worlock

Product *Citizen LPS 10* **Price** £275 **Supplier** Citizen Europe 4/10 Crowley Road, Uxbridge Middlesex UB8 2XW.

Of worms and bouncing babies

Marcus Rowland completes his three-part series on public domain software

Two weeks ago we looked at public domain software games. Here are the rest of them.

Willy the Worm probably needs about 128K, plus a graphics display. Registration is $10, no benefits are specified (PCBBUK Vol 241).

Bouncing Babies by Dave Baskin is an irresistibly sick idea that has often appeared as a stocking-filler electronic game. A building is on fire, and two attendants have to manoeuvre a trampoline to bounce an endless stream of babies into an ambulance. As the game progresses the number of babies in the air increases. The left and right cursor keys, or keys 1–3, are the only controls, shifting the trampoline to three points between the building and the ambulance. The colour graphics are excellent, and the game is extremely fast.

Digger

Bouncing Babies needs 128K and colour. Registration is $5, no benefits are specified (PCBBUK Vol 40).

Flightmare (by Peter Adams) is an interesting zap game. The scenario is vaguely similar to *Mad Max*: one of the last enclaves of civilisation, an aircraft factory, is under attack by hordes of marauding barbarians. The player controls a fighter plane, first in a strategic mode (using the cursor keys to fly to meet the most threatening enemy), then in a difficult tactical mode. This presents two views of the aircraft, one from above and one from the side, flying from West to East across the screen. The normal cursor keys move the aircraft up and down and backwards and forwards; the left-hand alphabet keys move the aircraft North or South (left or right from the pilot's point of view). To attack, the plane must be directly behind the enemy; the ground undulates, making it hard to hit and easy to crash. Collisions with other aircraft or the ground wreck the plane.

Occasionally the aircraft must dock with a blimp to take on fuel and ammunition. Attackers include bikers, aircraft and trucks, plus a heat seeking missile that can't be attacked, although it's possible to trick it into flying into the ground.

This program makes fairly effective use of colour graphics for an RGB or composite monitor. The concept and execution of this game are good, but there are a few flaws, notably in the author's spelling (in titles and screen messages), the poor graphics of the strategic screen, and in the fact that it doesn't seem to be possible to leave the tactical screen and rendezvous with the blimp if you run out of ammunition.

This is also the only game to crash (in every sense) if *Sidekick* was activated while it was running.

Flightmare needs 128K and colour (composite or RGB). The author asks for donations of $5–$50, no benefits are specified (PC-BBUK Vol 160).

Zaxxon (by Sega) is a genuine public domain version of the arcade game by the original manufacturers. It seems to have all the features of other implementations including 3D graphics, but doesn't save scores. It accepts joystick or keyboard control, and joystick use is strongly advised. Play proceeds in the usual waves of ascending difficulty and is reasonably fast (though 8 bit versions I've seen have been faster). *Zaxxon* needs colour, but there are no indications of minimum memory or other limitations (PCBBUK Volume 135).

Willy the Worm squirming on platforms

Spacewar (by Bill Seiler) is a one or two player version of the program that originally introduced computers to spaceship games, and directly inspired *Asteroids*. Two ships orbit around an *Asteroids* style screen, attacking each other with lasers and photon torpedoes. Their equipment includes force fields, invisibility screens and a random jump hyperdrive.

Options let you put a planet at the centre of the screen, turn gravity on or off, and have either ship controlled by the computer. The main charm of this game is its use of Newtonian physics: torpedoes go into orbit when fired, and if you don't take care to change your path they'll whip round the planet and hit you several seconds later.

The game is supplied in two forms, one using a normal IBM colour-graphics card, the other a high resolution Hercules graphics card. Controls use the left-hand alphabet keys and the right hand cursor pad; no keyboard problems are likely. This program locks out *Sidekick* but doesn't harm any files that are in memory.

Spacewar needs 128K and a colour board or Hercules compatible mono graphics card. Registration costs $20 (around £15) and includes the latest version of the game; for $30 (around £22) the source code is also supplied (PC SIG Volume 292).

All the programs described are available from International Software Distributors Limited, PO Box 872, Sutton Coldfield, West Midlands B75 6UP (021 378 2229), which imports directly from PC Sig in California. Note that this is a different address from that given previously; this address is correct.

The return of the (almost) paperless office

Duncan Evans plays with the toy not for executives, but for the average computer user at home

Previously available on disc or cassette *Mini Office 2* is a Rom-based version that plugs into any BBC machine In fact if you're going to provide an integrated package using the instant access that Roms provide is the most sensible and efficient method

Physically *Mini Office 2* consists of a circuit board containing four 27256 chips and a short length of lead plus connector that plugs into a spare Rom socket (you still have one spare don't you?)

The programs offered are a word processor database spreadsheet business graphics communications and lastly and something of a throwaway item a label printer

If you've ever used *Wordwise* then you'll feel at home straight away with the *Mini Office* word processor It's virtually identical in fact the only changes being cosmetic Most useful of these is the capability to process in 20 40 or 80 columns The disadvantage with the 80 column mode is that you get very little memory for your text three pages of A4 to be precise The 40 column mode is the most efficient as it uses the teletex mode 7 providing over 20K of free memory

The facilities it offers are pretty standard for a text only word processor and include justification search and replace block move and delete preview option merge text automatic wordcount and the ability to have imbedded control commands that can be sent to the printer All standard fare but essential never the less

The database has an odd look to it resembling a cut down spreadsheet more than anything else All the same it boasts 1023 records (enough for most small concerns) up to 20 fields per record the essential sorting facility and a type of field identifier The instructions for the database are not quite as clear as they could be and indeed the database itself is not simply laid out In its defence it is comprehensive and offers calculation facilities as well

The spreadsheet, like everything else in *Mini Office*, is fairly standard and does everything you'd expect a spreadsheet to do It provides up to 52 columns by 99 rows with each column being up to 16 characters in size

Also the spreadsheet can lock and unlock rows columns and cells to avoid values and formulas from being overwritten or changed and allow various mathematical operations beyond + – * and / The data from the spreadsheet can be saved and incorporated into the graphics program for displaying in a more attractive manner

The graphics package is the only part of *Mini Office* which is something of a disappointment It offers bar charts line graphs and pie charts

"Overall, Mini Office 2 provides a useful suite of functions . it's worth checking out"

When displaying the pie chart although the program allows up to 20 items of data the ones with the smallest values are cobbled together and displayed under the anonymous banner of Others The pie chart itself is drawn slowly as is the movement of the text labelling When displaying the bar chart the names of items of data are abbreviated to one letter regardless of however many there are of them and the text labels can only be run horizontally not vertically which would be of far more use

For clubs and newsletters the facilities offered by Graphics are probably good enough but executive types should look elsewhere

And so to Communications which mainly offers the facility to communicate with Microlink/Telecom Gold Fair enough from Database's point of view but justification on the grounds that it's the most common protocol is plain hogwash There is an option to customise the protocol used which could be useful for bulletin bases but not for something like Prestel/Micronet 800

Label printing can be regarded as something of a freebie tacked onto the end of the entire package Having said that if label printing is where you're at then this is certainly one for you

Overall *Mini Office 2* provides a useful if not spectacular suite of functions If you really only need one of the programs then it would be better to spend your money on a dedicated Rom otherwise it's worth checking out the all round capabilities of *Mini Office*

Duncan Evans

Program *Mini Office 2* **Micro** BBC B B+ Masters Compact **Price** £59 95 **Supplier** Database Publications, Europa House 68 Chester Road Hazel Grove, Stockport SK7 5NY

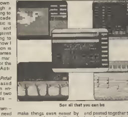
Designer games creation

Most computer owners go through a stage of wanting to write marvellous arcade games finding that Basic is too slow and limiting and bashing their heads against the wall trying and failing to learn machine code (I know I did) The popular solution is to buy one of the many games design programs on the market the best of which for the Commodore 64 is Activision s *GameMaker*

Written by Garry *Pitfall* Kitchen this disc-based package has now been enhanced by the release of two *Designer s Library* discs – *Sports* and *Space*

The *GameMaker* program – which of coures you will need to use the *Designer s Library* discs – is a sophisticated menu-driven package which allows you to define sprite shapes backgrounds sound effects and various game parameters such as collision rules scoring and so on It s quite possible to build up respectable-looking games which run at machine-code speed but the process is pretty time-consuming

The Designer s Library discs make things even easier by giving you lots of files of sprites backgrounds sound effects and so on, which saves you having to define your own Each disc contains a number of files which can be loaded into the appropriate section of the *GameMaker* program manipulated and improved then saved as fully functioning games



See all that you can be

The *Sports* disc for instance contains sections of background which can be cut and pasted together to create baseball diamonds football (American) fields basketball courts billiard tables and so on The sprite section contains relevant figures such as basketball players (from a variety of angles) golf balls hockey balls pool balls – quite a lot of balls in fact

Also included are stirring theme tunes and plunky sound effects

The *Space* disc is altogether more imaginative with various spaceships (including a marvellous giant rotating Death Star) backgrounds showing alien plant life and strange machinery, zappy sound effects and so forth

All the files can be edited using the facilities of *GameMaker* which will be fairly familiar if you have seen any similar package a grid type sprite designer a synthesiser-panel sound effects generator lots of menus to define gameplay and comprehensive save/load facilities

Most interesting though are the possibilities of combining files from the two existing libraries (more to come no doubt) to create weird hybrids like footballing aliens or inter-galactic billiards

Certainly better than struggling to count backwards in hexadecimal, and probably the closest most of us will ever get to writing decent arcade games

Chris Jenkins

Program *GameMaker Designers' Library* **Micro** Commodore 64 **Price** £14 99 disc only **Supplier** Activision, 23 Pond Street, London NW3

Basic compiler

Whatever your level of programming expertise, there s a lot to be said for compilers They often give you the ease of a high level language combined with a speed close to that of machine code

Of course the fastest compiled languages have been designed for compilation – such as Pascal and C

However, unless you're writing arcade games or other applications in which speed is crucial Basic can be adequate and a good compiler can reduce irritating pauses to a minimum

The latest Spectrum compiler has just been released by HiSoft and it is impressive

Many Basic compilers have a number of faults including the fact that they tag on to the end of your program a large chunk of code containing routines required to execute the program and they often require you to choose between integer math (fast but limited) or floating point (slow)

HiSoft Basic adds only the routines your program needs to run not a catch all block of code And it handles integer or floating point math as appropriate giving you the best of both worlds

The compiler itself takes up only about 11K of memory so on a 48K Spectrum you can compile a 30K program while on a Spectrum 128 or Plus 2 you can handle a program up to 40K in length

Using the program is simple All commands to the compiler are contained in REM statements in your Basic program For example

REM OPEN #

tells the compiler to begin compilation from that line

Typing *C begins actual compilation

Compilation times are adequately fast the size of your compiled code will not be substantially larger than the simple Basic and speed improvements may range from about three times to hundreds of times as fast

Most compilers are also restricted in that they cannot handle all Basic commands and syntax *HiSoft Basic* is no exception but its limitations are not major

It will not support arrays of more than two dimensions it won t support system commands such as SAVE LOAD etc and the default attributes for graphics commands are not incorporated

There is a difference too, in the way it handles computed GOSUBs and GOTOs The target line number must exist unlike Basic in which the branch will hit the first line number following the target line

Personally I don t consider this a limitation as computed branches are poor programming practice but Spectrum programmers may have to change some old programs to accommodate the loss

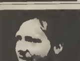
There are a few other differences from Basic but these are not omissions They merely require the addition of an extra compiler instruction For example REM LEN allows you to specify the maximum length of a string

The *HiSoft Basic* tape comes with two versions of the compiler A version specifically for the 128 and Plus 2 has some extra features notably a menu-driven command system

If you re a committed Basic programmer but could use some extra speed in your programs *HiSoft Basic* is an excellent buy

Peter Worlock

Program *HiSoft Basic* **Micro** Spectrum 48K, 128K and Plus 2 **Price** £15 95 **Supplier** HiSoft The Old School Greenfield, Bedford MK45 5DE



The Batman routine

Langley Hackers and Tony Kendle bring you another routine for Batman on the Spectrum

Welcome back to the Langley Hackers with another routine for the excellent *Batman*. It's the Spectrum version this time and there is absolutely nothing left to the imagination.

The routine includes infinite lives, disable kill, infinite fast speed, jump and shield (but you lose these last three if you touch a small batman, which disables everything).

You also have all the equipment at the start and the batcraft is already assembled. Be careful – if you fall from a great height and you can't jump back up you will have to start again.

When you load the tape it will automatically check the data and then save itself. Let this run its course then press any key and play your *Batman* tape with all its features.

More from this letter next week – and of course *Strike Force Cobra*.

```
[illegible]
20 CLS : LET [illegible] : PRINT "PLEASE WAIT DATA BEING CHECKED"
20 FOR A=64[illegible] TO 64739
30 READ B: POKE A,B
40 LET C=C+B
50 NEXT A
60 IF C<>[illegible] THEN PRINT "ERROR IN DATA": STOP
61 GO TO 150
70 DATA [illegible]
[illegible]
```

```
[illegible]
100 DATA [illegible]
[illegible]
```

```
200 IF C=[illegible] THEN GO TO 220
210 PRINT "DATA CORRECT   PREPARE TO SAVE PROGRAM"
220 PAUSE 100
230 LET C=[illegible]: SAVE "BATMAN" LINE 10
240 CLS : PRINT "INSERT BATMAN GAME   PRESS PLAY AND WAIT": PAUSE 5
250 RANDOMIZE USR 64648
```

Charts

Top Twenty

1	(1)	World Games	Epyx/US Gold
2	(3)	Computer Hits Vol 3	Beau Jolly
3	(2)	Trivial Pursuit	Domark
4	(5)	180	Mastertronic
5	(–)	Breakthru	Data East/US Gold
6	(–)	Cobra	Ocean
7	(12)	They Sold a Million (3)	Hit Squad
8	(–)	Konami's Coin-op Hits	Imagine
9	(15)	Five Star Games	Beau Jolly
10	(4)	Infiltrator	Mindscape/US Gold
11	(7)	Thrust	Firebird
12	(–)	Crystal Castles	US Gold
13	(–)	The Great Escape	Ocean
14	(–)	Avenger	Gremlin Graphics
15	(5)	Uridium	Hewson
16	(–)	1942	Elite
17	(–)	Ace of Aces	US Gold
18	(6)	Ollie and Lisa	Firebird
19	(9)	Ninja Master	Firebird
20	(10)	Paperboy	Elite

All figures compiled by Gallup/Microscope



GOAL!
BBC/Electron

The first realistic football simulation for the Electron featuring excellent graphics, music and an intelligent opposition that actually adjusts its skill level during the game depending on current state of play

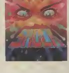
Cass **£7.95**

FUTURE SHOCK
BBC/Electron

An amazing new style of Arcade game with inter-active sub plots using large detailed graphics for superb detail. This game pushes the machine and the player to unparalleled limits for many hours of enjoyment making this a game not to be missed

Quote from Electron User – December Issue
"Future Shock is an excellent program, a game which overflows with character and humour. Overall Rating 9/10"

£7.95 Cass.





WHO DARES WINS II
C16/+4

At long last a conversion for the C16 of a No. 1 Hit that lives up to its original. Over 40 screens of fighting action (more screens than the original 64 version)

Cass **£7.95**

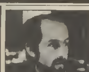
JET SET WILLY II
C16/+4, BBC/Electron

Over 50 screens of this classic game will give even the most skilful player the ultimate challenge





Tynesoft Computer Software Addison Industrial Estate Blaydon Tyne & Wear NE21 4TE Tel (091) 414 4611



The weekly adventurer's Fix

New ways to write adventures and new places to read about them, from Tony Bridge

A couple of weeks ago I spoke about a program called *2001 1/2* from Microtech and some of you may like to know their address. It's Microtech, The Bedroom, 89 Whitley Spring Crescent, Ossett, West Yorkshire WF5 0HS (0924 279234).

In the same Corner I also mentioned *Flook* by David Oya – it may not be immediately obvious that the adventure is initially available for the Amstrad machines.

Both of those adventures were written with *The Quill* and the rumour of a powerful extension to that utility is now fact with the release of the *Professional Adventure Writer* (or *PAW*) and *The Press* which will allow for text compression. I haven't seen these add ons yet but will report as soon as possible.

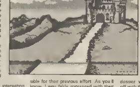
However I *have* seen the latest version of *The-Fix* from Kelsoft. It's another add-on for *The Quill* and briefly, consists of several sub-programs which allow for more complex flag handling and better synonym recognition.

Possibly *The-Fix*'s most interesting feature however, is that it allows for a further two words to be recognised and acted upon in a single input. *The-Fix* has had some success already, but Kelsoft tells me that it has now produced *MiniFIX* at just £3, which is as its name suggests a cut down version and contains just the section which handles the expanded parser. Both versions work with *The Patch* and *Illustrator*.

With both programs comes a demonstration database which displays the kind of effects which can be obtained. Although Gilsoft's *PAW* and *Press* will doubtless prove to be indispensible to serious adventure-writers, I'm sure that they will also set you back quite a hefty sum, so if you want to make your *Quill*'d adventures look a little different, have a look at *The Fix* from Kelsoft at 28 Queen Street, Stamford, Lincolnshire PE9 1QS.

I'm glad to see that a program I looked at in the November 13 issue, Adventure Software's uniquely-named *Adventure* will now be available to a wider public. It will be renamed as *A Serf's Tale, a Retelling of the Original Adventure* and will be released in time for Christmas for just £1.99 on the Players Software label.

In the meantime, Nigel Brooke and his hitherto anonymous colleague Said Hassan have re-formed as Smart Egg Software and have been commissioned by Mastertronic to write *Rigel's Revenge* using the same system that was responsible for their previous effort. As you'll know I was fairly impressed with their debut story and look forward to the next one. Incidentally it's good to see that some companies at least are putting toes back into the icy waters of text-only adventures, let's hope others follow suit.



While I'm in a follow up mood, G T Kellett of the aforementioned Kelsoft tells me that he is a member of *Adventure Contact* (the monthly publication for adventure-writers as much as players) and that the cost of each issue has just risen to £1. Still not bad I think, though this is one of the few such magazines that are actually worth spending this sort of money on: there's a lot of inside information on the *GAC* and *Quill* here from both the editor and from benevolent members willing to share their hard won knowledge with others.

If you're struggling with one of the adventure-writing utilities, you'll find the *Contact* invaluable and required reading. The address, as I've said before, is 13 Hollington Way, Wigan WN3 6LS.

I've just received the latest copy of its sister magazine *Adventure Probe*, which is also £1 a copy. Co-editor Sandra Sharkey reminds me that a 12 month subscription will lower this figure to 75p. These two monthlies contain a lot of feedback from members in the form of articles and a lively Letters page, which is always a good sign.

I quite often mention enterprises such as this and make no excuse – I feel that it is concerted efforts such as these that keep us adventurers toiling at those difficult games.

And as for solutions, not only are there plenty in the magazine itself, but Sandra also has full solutions for a wide variety of adventures for the princely sum of 18p.

Oh dear, I seem to be back on the subject of Adventure magazines – while I am, I should also mention The Adventurers Club once more. Henry Mueller is gradually getting this one back on the road to solvency once more.

I've just received the new dossier which continues much as it left off with the presence of Honorary President Peter Austin of Level 9 (this month listing his personal dislikes in adventures – see what he thinks of the competition!) and as much help and advice as always. Of interest to me was the seventh part of the full solution to *Mordon's Quest*. From this I've found out that the name of the magazine I've acquired in the library dome will be required later to answer the sales robot's question. Apart from this there is also the third part of the solution to *Lord of the Rings* and the complete solution for *Adventureland*.

Incidentally Henry tells me (and it has been confirmed elsewhere) that Nick Walkland's *Orcsbane*, probably my favourite fanzine, will soon alas be no more. If you are a subscriber to this particular bundle of (almost) regular nonsense and commonsense, then drop a line to Nick offering your services and let's see if we can persuade him to change his mind.

Erik the Viking How do you get past the invisible wall? M Baxter 193 Rowan Place Newton Aycliffe Co Durham DL5 8BA

Ten Little Indians What do you do with the hammer and chisel and how do you open the large wall safe? Geoff Lonmer 1 Deepdale Drive Morton Park Carlisle Cumbria CA2 6LS

Mordon's Quest on Spectrum Can t get through invisible barrier or past gladiator How do I get air to dive to under water basin? D Blunden 49 Little Norton Lane Sheffield S Yorkshire S8 8EB

Forestland on Commodore 64 I have found the safety match – but where is the box to strike it on? Les Austin 25 Royal Avenue West Onchan Isle of Man

The Price of Magik on Spectrum How do you command the various monsters in the game? Jason Ross 2a Balloch View Seafar Cumbernauld Glasgow G67 1HE

Superoom (Atlantis) on Spectrum What is the code for Armageddon? Carl Brennand 4 Lyndale Grove Lostock Hall Preston Lancs PR5 5XX.

The Hobbit on Spectrum. Once you have the ring where do you go? How do you get past the spiders? Is it important to get past the spiders? Once out of the goblin s cave where do you go? How do you get out of the elvenking s hovel? I have got out of the dungeon by using the red key PS Does anyone have any information on *Jewels of Babylon* especially how to get out of the forest? Shain Allen, Ysgubor Crow Lane Gt Bourton Near Banbury Oxon OX17 1RL

Warlord and Mordon s Quest on Amstrad CPC464 In *Warlord* what do you do with the Fomorian tribe? Have got 92% What do you do with the clay pot um chariot vase and the body trapped by the timbers? In *Mordon s Quest*, need exact ... the guards to get out of catacom... can t find aqualung Can offer help on *Red Moon Message from Andromeda Heroes of Karn Jewels of Babylon Forest at World s End* and *Seabase Delta* Christopher Eng 14 Amner Road London SW11 6AA

Heroes of Karn on Amstrad How do I get past bear get money get out of dungeon and what does Beren do? Graham Porter 10 Westfield Drive Yeadon Near Leeds Yorkshire LS19 7NP

The Pawn on Atari 520ST How do you open the safe and where do I find the key for the door in the ice tower? Sandra King 10 Hole Farm Way Hawkesley Birmingham B8 9RW

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand

Fill in the coupon explaining your problem, send it to us, and a fellow adventurer may be able to help

Remember – the system only works if those adventurers who have solved the puzzles get in touch Every week is Save An Adventurer Today (SAAT) week!

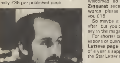
Adventure ______ on (Micro) ______
Problem ______
Name ______
Address ______

Get writing – get Popular

Popular Computing Weekly always welcomes contributions from its readers for articles features and program listings

Whether you want to write articles see your programming masterpieces in print pass on some words of wisom or simply let off steam there s space in the magazine for you

Ideas for **feature articles** or completed articles should be sent to Christina Erskine All aspects of home computing are considered but we cannot feasibly accept anything longer than 2 000 words so brief is best It s worth checking by phone or letter first that your article will be suitable Payment is normally £35 per published page



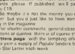
Technical editor Duncan Evans looks after the **program listings** and articles on programming We rely on you for our Programming section so earn yourself a place in the *Popular* Hall of Fame (and £25 for each page we print) by having your program published Even if it s not 100s of K of pure machine code but a short snappy routine there may well be a place for it in **Bytes and Pieces** (£10 a shot)

Articles on any aspect of programming are also welcome – with short listings included if relevant

Got something you feel needs saying loud and clear? Your opinions on any aspect of the computer industry are welcomed so why not write in to the **Ziggurat** section? No more than 600 words please If published we ll pay you £15

So maybe it s not the money you re after but you d just like to have some say in the magazine

For shorter comments general observations or queries there is of course the **Letters page** with the tempting offer of a year s supply of *Popular* binders for the Star Letter each week



Left the adventurous Tony Bridge
Right the active Tony Kendle

For more specific points our team of columnists are always willing to answer questions and keen to hear the latest information Drop your lines to **Tony Bridge** (adventure hints always gratefully received) **Tony Kendle** (who wants as many Arcade pokes maps solutions etc as possible! **David Wallin** (communications) **Kenn Garroch** (programming problems) **Mark Jenkins** (music queries and sample tapes) and **Martin Bryant** (computer chess comments)

All letters should be addressed to *Popular Computing Weekly* 12–13 Little Newport Street London WC2H 7PP If you mark your letters with the department you want things get processed much more quickly



A worthy arcade adventure in Ravenskull



Hard on the heels of the superb *Repton 3* BBC owners have another treat in store from Superior Software – *Ravenskull*.

This new release is more in the way of traditional arcade-adventures, although it is graphically similar to *Repton*.

You play the hero – adventurer, wizard, warrior or elf – who has volunteered to retrieve a mystical cross from the hazardous Castle Ravenskull.

There are many puzzles to be solved – how to manipulate keys and pickaxes to gain entry to different parts of the maze – and many areas where you'll require arcade dexterity in avoiding the fast-moving guardians of Ravenskull, the dreaded Ravenbees.

You're also up against a time limit in that you need to find food and drink to keep your strength up. But beware – some of it is poisoned.

To top off the adventure feel there are magical potions and scrolls which may help or hinder your quest.

The graphics are clear and colourful, the animation is very smooth and the sound effects are adequate. There's also a nicely performed background tune which will drive you nuts after one minute. Fortunately you can turn this off.

I didn't enjoy *Ravenskull* as much as *Repton 3* but it's still worthy of a place in your collection.

Popular Appeal ♦ ♦ ♦

Peter Worlock

Program *Ravenskull* **Micro** BBC **Price** £11.95 disc **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX

Trooper provides a strange mix

Here's one for the record book – a game specifically written for the 128/Plus 2. But for those drooling at the thought of some bopping the night away to the soundtrack, they are going to be disappointed and anything that beeps Congratulations from time to time does not inspire confidence to being exactly state-of-the-art.

In fact *They Call Me Trooper* is a strange mix of martial art combat and arcade adventure – the two elements being played on separate screens.

It seems that during the high level talks for Galactic Peace the Therop have done the dirty on all other sentient beings and put them through a brain drain machine – turning them into deadly exterminators who are out to get you, the only surviving member.

The only thing is to find parts of a space ship that are scattered around the planet and escape.

The first thing you must do is find yourself a rope and grappling hook, essential for those long drops and climbs – not too difficult as there's one on the screen immediately to the right of your starting position, but before you get that far, a green man will try and put the boot in, and off you go to the martial arts bit.

This screen looks excellent with large single colour sprites – very impressive – in fact this part can be played as a two part player game apart from the main scenario.

This would be a first class game were it not for some fundamental faults. Firstly, the terse instructions on the inlay read like they have been badly translated from the Japanese, and so are completely adequate. More importantly with the Kempston option on you cannot manipulate/use objects from the keyboard.

With a little more effort *Trooper* could have been a first class effort. Instead I suggest you file it under cuno.

Popular Appeal ♦ ♦

John Cook

Program *They Call Me Trooper* **Micro** Spectrum 128/Plus 2 **Price** £8.95 **Supplier** CRL, 9 Kings Yard, Carpenter's Road, London E15 2HD

Donkeying Around

Hands-up those of you who like Donkey Kong? Now put your hands down if you don't expect to play it ever again? Put your hands down if you already have a version for your Commodore 64. Now put your hands down if you're not ready to pay a couple of quid for a decent budget version.

Right, those of you with your hands still up are in business. Because Ocean has just released the official conversion of the Konami arcade classic.

Yes it is very late (about two years too late) and yes there are tons of cheaper not quite identical versions.

But this is the real thing. The graphics are almost as good as the arcade original, the sound track is perhaps a bit better. And it plays extremely well.

You don't care? Oh well.

Popular Appeal ♦ ♦ ♦

Peter Worlock

Program *Donkey Kong* **Micro** Commodore 64 **Price** £8.95 **Supplier** Ocean, Ocean House, 6 Central Street, Manchester M2 5NS.



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A joystick for your thoughts

If you committed the cardinal sin of missing last week s issue here is a second chance to make your opinions known in the third Annual Readers Poll

This is your opportunity to name names and vote for your personal best and worsts of 1986 – games utilities programmers hardware

This year we ve got an added incentive to get you to fill out the form We ve got 50 Konix Speed King joysticks to give away to 50 lucky entrants picked at random on the closing date

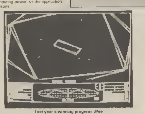
As this is an annual poll we re looking for 1986 products only However anything launched in November or December 1985 should be OK since most of their sales will have been this year

Program of the Year (overall)

Last year's winner: *Elite* (Firebird)

This is the highest accolade you can pay a computer program the game that had you hooked to the screen for weeks on end or the utility which transformed your computing power or the application which infinitely expanded your horizons

Please write answers in the boxes below



Last year s winning program *Elite*

Arcade Games of the Year

Last year's winner *Elite* (Firebird)

Shoot em ups arcade adventures basically anything that you d get the joystick out for But which one really brought out the sweat on your brow and gave you sleepless nights?

Simulation of the Year

New category

A wide variety here – flying martial arts athletics motor racing space travel Cast your vote for the most addictive and realistic simulation of all

Adventure Game of the Year

Last year's winner: *Lord of the Rings* (Melbourne House)

Tingling with atmosphere fraught with fiendish puzzles an absorbing plot we re looking for the best adventure of them all

Business Program of the Year

Last year s winner *Mini Office* (Database)

More people are using their micros for some form of business use whether domestic accounts club newsletters or full blown spreadsheets and databases We want to hear about the one that transformed your business

Utility Program of the Year
Last year's winner: *The Art Studio* (Rainbird)

Programming languages, machine code monitors, graphics aids, music composers, communications software: the list is ever increasing. In there is a gem of a program which deserves this award. Which is it?

Peripheral of the Year
Last year's winner: AMX mouse

Your chance to vote for the add on which made you wonder how you ever survived without it.



AMX Mouse

Best Software House
Last year's winner: Melbourne House

Consistency and excellence is what we're after here. The company whose programs you look out for because you know they're going to be great.

Best Programmer
Last year's winner: Roy Carter and Greg Follis (Gargoyle Games)

It could be their graphics, their sound, their plotlines or the overall style. Who is the programmer or programming team you most admire?

Most Exciting New Computer
Last year: Amstrad CPC 6128

Plenty of launches this year to choose from — the Amiga, the 128D, the 64C from Commodore, Acorn's Master series and Master compact, the Amstrad PC and Spectrum Plus 2, a new Einstein and the games consoles are on their way back.

Most Overrated Software House
Last year: Ultimate

The advertising is brilliant. The managing director appears on *Wogan*. Your friends have life size posters of the in house programmers on their bedroom walls. The product packaging makes you gasp. The releases are always a disappointment. Stand up and be counted here.

Computer program you Most Regretted Buying in 1986
Last year: *A View to a Kill* (Domark)

Somebody told you it was the best thing since sliced bread. You loaded it up, trembling with anticipation ... and what a let-down. Name names in this section.

Please send in your completed poll form (if you don't feel qualified to vote in one or two of the sections, don't worry, just leave it blank) to Readers Poll, *Popular Computing Weekly*, 12–13 Little Newport Street, London WC2H 7PP, to reach us by Wednesday December 10. The results will be published in the issue dated December 18.

Name

Address

Running the Ga

WIZARD
SCORE HEALTH
1575 1319

ELF
SCORE HEALTH
1355 1671

The licensing deal of the year they called it This was it the big one It was odds on to be top of the charts at Christmas – almost before the programming began

You ve seen the adverts poured thousands into the arcade machine in fact US Gold even give you the chance to wear the T-Shirt if you enter their Design a Dungeon competition

Now we have the finished (Amstrad CPC) version of *Gauntlet* the home computer game

In case you are not a follower of these things – perhaps recently returned from a five-year sabbatical in Nepal – *Gauntlet* deserves some explanation

When it hit the British arcades last year it caused a sensation like there hasn t been for a long long time It had advanced graphics and some neat digitised sound But the real thing that had the punters queueing up was the fact that it was multi-player Up to four players could be on the machine at any one time each taking the role of a different character a primitive kind of arcade *Dungeons & Dragons* Well over 9 000 machines later *Gauntlet* established itself as an arcade smash and so became a natural target for conversion to home micros

The sceptics said it couldn t be done The realists said it didn t matter how it was done as long as it had the name Gauntlet on the cassette box

The first of the many rumours to surround the game and its programming team (which included the opinion that the game would never make it for Christmas!) was that the idea of more than two players on screen was a no no Not even the might of Gremlin Graphics (sub-contracted by US Gold/Centresoft to convert the thing) could weld four joystick ports on every target machine so they ve settled for the one/two player option, each player selecting their character from one of the original four Thor the Warrior Thyra the Valkyrie Merlin the Wizard and Questor the Elf Each has advantages and disadvantages

The Elf is fast and good at using magic potions but is a bit of a wimp when it comes to hand to-hand combat The Warrior throws a mean battle axe and can take quite a bit of punishment from the monsters – but can it tell his runes from his pentagrams Note that unlike *Gauntlet II* which has just reached the arcades only one of each character type can take part in the game

Having made your choices away you go and transported to Level One of the dungeon Quite simply each level of the dungeon is a monster infested maze which you must hack your way through to reach an exit to a lower level The lower the level the harder and neater the monsters Death makes an appearance after a while – a black figure who can only be slain using a magic potion

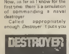
The puzzle element of the game also starts to come into play after a while – when the

Destruction in the Pacific

Simulations are a time honoured part of software history – both for real applications and for entertainment

We ve had aircraft spaceships cars and submarines Now, as far as I know for the first time there s a simulation of commanding a naval destroyer

Called appropriately enough *Destroyer* it puts you in command of a US ship in the Pacific during World War II

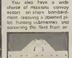


The game itself is played on ten different screens showing navigation bridge damage control radar and sonar and all your weapons systems

You can take direct control of any of these areas or trust your crew to handle things while you play the cool commander type

On every screen there s a communications line which will display messages from different crew stations

You also have a wide choice of missions convoy escort on shore bombardment rescuing a downed pilot hunting submarines and screening the fleet from air raids



Different missions have varying degrees of difficulty A screening mission is easy since you don t have to move – you simply try to shoot down the incoming planes Convoy escort is a real trial since you ll be up against planes subs and enemy battleships and you ll need to control radar sonar and all weapons systems

As you d expect from Epyx the graphics are stunning – lots of metallic control panels and winking lights Perhaps the most impressive graphics are on the air attack screens where enemy planes zoom at you with stunning realism and when shots will spin and plummet into the ocean trailing smoke

The major disappointment is the sound Minimal is hardly the word When you re blasting the hell out of an enemy ship, all you hear is a pathetic Xish Xish as your main five inch guns blast away

Where are the throb of your engines the screaming dives of Japanese Zero bombers the boom of heavy armement and the rattle of machine guns?

The only other complaint is the inability to save your ship s log so that you start from scratch each time you play

Had these features been included *Destroyer* would have been a five star classic

As it is it s merely very good Nice to see Epyx back on form after the disappointing *World Games*

Popular Appeal ◆ ◆ ◆

Peter Worlock

Program *Destroyer* **Micro** Commodore 64 **Price** £14 95 disc only **Supplier** US Gold, 2/3 Holford Way Holford, Birmingham B6 7AX

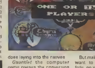
Gauntlet

mazes get complicated and you have to start knocking down walls to get anywhere

Time is important You start off with 2000 strength points but the stress of being surrounded by all these perils mean it s counting down all the time (just like real life mortals) and when you get hit by the opposition it goes down even faster

Strength can be regained by collecting food found lying around the place so playing the two player game you get to know who your friends are pretty quickly as you both make a grab for the goodies

And no fantasy trip would be complete without treasure would it? *Gauntlet* is no exception and collecting it will increase your score as





does laying into the natives

Gauntlet the computer game passes the conversion test easily At least as good as it could be on a home micro Best played with two of you shouts of Cover me Bodiel fill the room and it s not a bad romp as you give thousands of Evil Things exactly what s coming to them

Gauntlet was never about intellect – just hit that fire button and take them apart And there is the possibility that without the puzzle elements of some games of a similar genre (say *Druid*) or the flashy effects of the stand-alone there won t be much to hold you for a long period of time

But make no mistake if you want to play *Gauntlet* no frills on your home computer this Christmas (and although we ve only seen the CPC version there s no reason why the others shouldn t be of a similar standard) – US Gold has delivered the goods

Popular Appeal ◆ ◆ ◆

John Cook

Program *Gauntlet* **Micro** Amstrad CPC (CBM 64 Atari XL/XE MSX Spectrum ST Amiga and PC versions to follow) **Price** £9 99 (tape) £14 99 (disc) **Supplier** US Gold Unit 2/3 Holford Way Holford Birmingham B6 7AX

Phantastic Phantasie

It s a hard life adventuring in Gelnor Trudging back from a tiring day down the local dungeon eagerly anticipating a good time at the local town s guild and what jumps out nostrils flaring? An orange dragon of all things! Chomp

Phantasie is the name of this game and defeating the evil sorcerer is the aim

If you hadn t realised by now *Phantasie* (by Strategic Simulation) is a role playing game where you create and arm a party of up to six characters from a variety of races (human elf gnoll etc) and classes (priest warrior ranger wizard – you know the sort of thing) and set off into the countryside with the aim of searching out Nikademus and paying him his dues

Of course it isn t that straightforward After a few plays it appears that you only have to kill things gain experience pay for training to increase your hit points and skills and find Nikademus in order to accomplish your aim After many more hours at the keyboard the truth of the matter dawns There is far more depth to *Phantasie* than is initially apparent Take the matter of the rings for one thing You have to have all nine in order to get a stab at the sorcerer but where are they? Well scattered about the land are various scrolls which reveal many important (and some not so) facts

In one dungeon you have to discover the secret phrase to say to a cook when he asks you about Kilmor the dwarf The cook tells you to say something else to Kilmor when you meet him and when you do and quote the right words he tells you the secret number to get into the inner sanctum of the Temple of Gelnor without being vapourised Doing this opens a secret passage way into a nearby fountain wherein lies the elusive scroll 19

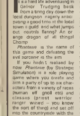
The graphics of the maps are not great but the close ups of the party and monsters in a combat situation are very nicely done with some of the larger monsters being very impressive Sound effects are minimal but that s to be expected in this sort of game

If you can survive the initial battles and put up with wading through low level monsters when you re on the trail of a vital clue then you ll discover for yourself what an addictive and wonderful game *Phantasie* is Now then where did I put that Halberd?

Popular Appeal ◆ ◆ ◆ ◆

Duncan Evans

Program *Phantasie* **Micro** Atari ST **Price** £39 95 disc only **Supplier** Silica Shop 1–4 The Mews Hatherley Road Sidcup Kent DA14 4DX



Teletext Designer

W D P Gumm

This utility program is used to design pictures in Teletext mode 7. Full colour teletext graphics and text can be mixed by using a combination of the function, Shift and Control keys to produce the appropriate control codes.

The keys used are:

Tab – pen up (flashing cursor) / down
Z – move cursor left
X – move cursor right
: – cursor up
/ – cursor down
Shift – and the following
F1–F7 – alphanumeric colours
F8 – flash on
F9 – steady (default)
Control and the following
XX XX – Xxxx xxx xxxxxx
F8 – conceal display
F9 – continuous graphics (default)
B – new background (must follow colour code)
C – clear screen
H – double height code
N – normal height
L – load new screen
S – save screen
T – enter text at cursor
Delete – delete character

It is important to note that all the control characters take up one character square so that square will be left blank. It is probably easier to draw a design in white and then carefully add the colour and text afterwards.

```
[illegible]
 2[illegible]
 3MODE7
 40VDU23,1,0;0;0;0;:REM CURSOR OFF
 50DIMB%7
 60!B%=&08014020:REM LOOK UP TABLE TO
FIND CORRECT PIXEL
 70B%!4=&4010
 80FORA=0TO24:PRINTTAB(0,A)CHR$151;:NE
XT
 90[illegible]X%:Y1%=Y%
 100IFINKEY-98 AND X%>0 X%=X%-1
 110IFINKEY-67 AND X%<77 X%=X%+1
 120IFINKEY-105 AND Y%>0 Y%=Y%-1
 130IFINKEY-73 AND Y%<74 Y%=Y%+1
 140key=INKEY(0)
 150IFkey=96 PRINTTAB(X% DIV2+1,24-Y% D
IV3)CHR$157:X%=X%+2:X1%=X%
 160IFkey=67 PRINTTAB(0,24)"SURE
(Y/N)";:A=GET:IFA=ASC"Y" CLS:GOTO80 ELS
EIFkey=67 PRINTTAB(0,24)STRING$(16," ")
 170IFkey=6[illegible] PRINTTAB(X% DIV2+1,24-Y% D
IV3)CHR$141:X%=X%+2:X1%=X%
 180IFkey=76 PRINTTAB(0,24)"LOAD ? (Y/N
)";:A=GET:IFA=ASC"Y" VDU28,0,24,39,24:I
NPUT"FILENAME "file$:OSCLI"LOAD "+file$
:VDU26 ELSEIFkey=76 PRINTTAB(0,24)STRING
$(14," ")
 190IFkey=9 plot=1-plot
 200IFkey>127 AND key<138 OR key>143 AN
D key<154 PRINTTAB(X% DIV2+1,24-Y% DIV3)
CHR$key:X%=X%+2:X1%=X%
 210IFkey=127 PRINTTAB(X% DIV2+1,24-Y%
DIV3)CHR$32:X%=X%-2:X1%=X%
 220IFkey=72 PRINTTAB(X% DIV2+1,24-Y% D
IV3)CHR$141:X%=X%+2:X1%=X%
 230IFkey=78 PRINTTAB(X% DIV2+1,24-Y% D
IV3)CHR$140:X%=X%+2:X1%=X%
 240IFkey=83 PRINTTAB(0,24)"SAVE ? (Y/N
)";:A=GET:IFA=ASC"Y" VDU28,0,24,39,24:I
NPUT"FILENAME "file$:OSCLI"SAVE "+file$
+" 7C00 7FE7":VDU26 ELSEIFkey=83 PRINTTA
B(0,24)STRING$(16," ")
 250IFkey=84 VDU28,0,24,39,24:INPUTTAB(
0)"TEXT "text$:CLS:VDU26:PRINTTAB(X% DI
V2+1,24-Y% DIV3)text$
 260IFX1%<>X% OR Y1%<>Y% PROCPLOT(X% Y%
):IFplot=1 PROCPLOT(X% Y%)
 270PROCPLOT(X% Y%):PROCPLOT(X% Y%):REM
MAKE CURSOR FLASH
 280GOTO90
 290
 300DEFPROCPLOT(X%,Y%)
 310REM PLOTS A POINT IN TELETEXT MODE
 320REM WITH COORDS (X% Y%)
 330VDU31,X% DIV2+1,24-Y% DIV3
 340Y%=B%?((X% AND 1)+2*(Y%MOD3))*2)
 350A%=135:REM READ CHARACTER AT
CURSOR POSITION
 360value=(USR &FFF4 AND &FF00) DIV256
OR 128
 370IFplot=1 value=value EOR C% ELSE va
lue=value OR C%:REM EXCLUSIVE OR PIXEL I
F NO MARK IS REQUIRED (plot=1)
 380VDU value
 390ENDPROC
```


Joystick function

David Stewart

This short program will return a value from a joystick connected to Ctl 1 or Ctl 2, the values being the same for each port. There is only one parameter required for the function, the port number. *A=Joy(1)* reads Ctl 1 and *Joy(2)* reads Ctl 2.

As the Ctl ports mimic the keyboard this program will read the function keys, cursor keys and space just as well.

The following diagram illustrates which values are returned when the joystick is in each position. The cursor keys and space use *Joy(1)* while the function keys use *Joy(2)*. When the fire button is pressed add 18 to the values on the diagram.

```
1 CSIZE 0 0
10 CLS:PRINT 'Press function keys
cursor keys space \
 Move joystick in port 1 or/and 2
20 AT 4 0:PRINT 'CTL1 ',,'CTL2'
30 CSIZE 3 1
40 AT 3 0:PRINT JOY(1);   'AT
3 8:PRINT JOY(2)
50 GO TO 40
29997
29998 REMark  DAVID STEWART
29999
30000 DEFine FuNction JOY(port)
30010 LOCal jo,val
30020 jo=0:IF port<>1 AND port<>2
THEN RETurn 255
30030 val=KEYROW(1+(port=2))
30040 SELect ON port
30050 =1
30060 IF val&&16:jo=jo+1
30070 IF val&&2:jo=jo+2
30080 IF val&&128:jo=jo+4
30090 IF val&&4:jo=jo+8
30100 IF val&&64:jo=jo+16
30110 =2
30120 IF val&&2:jo=jo+1
30130 IF val&&16:jo=jo+2
30140 IF val&&8:jo=jo+4
30150 IF val&&1:jo=jo+8
30160 IF val&&32:jo=jo+16
30170 END SELect
30180 RETurn jo
30190 END DEFine JOY
```


ACADEMY

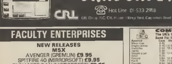
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Head Control

Stuart Mitchell

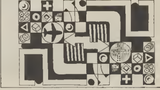
This program allows the headers of all Spectrum files to be redefined

On execution the menu presents three choices load save and amend

Headers can be loaded and saved in the same way as normal programs

Amending the header is a simple process of redefining its characteristics This includes length type of file start address auto run line and filename

The program has many uses one of which is stopping target programs from automatically running



```
1 REM HEAD CONTROL
2 REM  STUART MITCHELL
3 REM
10 BORDER 0: PAPER 0: INK 7: CLS
20 CLEAR 63999
30 GO TO 9000
40 LET Z$=CHR$ 22+CHR$ 10+CHR$ 0+"POSITION TAPE,THEN PRESS ANY KEY"
100 PRINT AT 0,9;"HEAD CONTROL"
110 PRINT AT 5,0;"1","LOAD HEADER";AT 7,0;"2","SAVE HEADER";AT 9,0;"3",CHR$ 8;"AMEND HEADER"
120 PRINT AT 21,0;" Stuart Mitchell S.U.C.software"
125 PRINT AT 15,0;"CURRENT>";: FOR n=64001 TO 64010: PRINT CHR$ PEEK n;: NEXT n
130 LET a$=INKEY$: IF a$<"1" OR a$>"3" THEN  GO TO 130
132 IF INKEY$<>"" THEN  GO TO 132
135 CLS
140 IF a$="1" THEN  GO TO 1000
150 IF a$="2" THEN  GO TO 2000
160 IF a$="3" THEN  LET C=2: GO TO 3000
1000 PRINT Z$
1010 IF INKEY$="" THEN  GO TO 1010
1020 PRINT AT 21,12; FLASH 1; BRIGHT 1;"LOADING"
1030 RANDOMIZE USR 64100
1040 CLS : GO TO 100
2000 PRINT Z$
2010 IF INKEY$="" THEN  GO TO 2010
2015 PRINT AT 21,11; FLASH 1; BRIGHT 1;"RECORDING"
2020 RANDOMIZE USR 64200
2030 GO TO 1040
2500 DATA "PROGRAM","NUMERIC ARRAY","CHAR ARRAY","BYTES"
3000 CLS : PRINT AT 0,10;"HEAD DETAILS"
3010 PRINT AT 2,0;"CURRENT>";: FOR n=64001 TO 64010: PRINT CHR$ PEEK n;: NEXT n
3020 PRINT AT 4,0;"TYPE    >";
3030 RESTORE 2500: FOR N=0 TO (PEEK 64000): READ A$: NEXT N: PRINT A$
3040 LET F=N-1
3050 PRINT AT 6,0;"DATALEN>";PEEK 64011+256*PEEK 64012
3060 IF F=1 OR F=2 THEN  GO TO 3200
3070 LET S=PEEK 64013+256*PEEK 64014
3080 IF F=0 AND S<=9999 THEN  PRINT AT 8,0;"RUNLINE>";S
3085 IF F=0 AND S>9999 THEN  PRINT AT 8,0;"RUNLINE>-"
3090 IF F=3 THEN  PRINT AT 8,0;"ST ADDR>";S
3100 IF F=0 THEN  PRINT AT 10,0;"PROGLEN>";PEEK 64015+256*PEEK 64016
3210 PRINT AT 20,12;"ZERO>MENU";AT 21,0;"CURSOR> SPACE       SELECT> ENTER"
3220 PRINT AT C,21; INVERSE 1;"<"
3225 IF INKEY$<>"" THEN  GO TO 3225
3230 IF INKEY$=CHR$ 13 THEN  GO TO 3300
3235 IF INKEY$="0" THEN  CLS : GO TO 100
3240 IF INKEY$<>" " THEN  GO TO 3230
3250 PRINT AT C,21;" ": LET C=C+2: IF (C=8 AND (F=1 OR F=2)) OR (C=10 AND F=3) OR (C=12 AND F=0) THEN  LET C=2
3260 GO TO 3220
3270 POKE 23617,158: INPUT "NEW FILENAME"; INVERSE 1;">"; INVERSE 0; LINE A$
3280 IF A$="" OR LEN A$>10 THEN  GO TO 3270
3290 LET A$=A$+"          "( TO 10-LEN A$): FOR n=1 TO 10: POKE 64000+n,CODE A$(n): NEXT n
3295 GO TO 3000
3300 IF C=2 THEN  GO TO 3270
3310 IF C<>4 THEN  GO TO 3350
3320 LET V=PEEK 64000: LET V=V+1: IF V=4 THEN  LET V=0
3330 POKE 64000,V: GO TO 3000
3350 IF C<>6 THEN  GO TO 3400
3360 POKE 23617,158: INPUT "NEW DATA LENGTH"; INVERSE 1;">"; INVERSE 0;V
3370 IF V<0 OR V>65535 THEN  GO TO 3360
3380 POKE 64011,V-256*INT (V/256): POKE 64012,INT (V/256)
3400 IF C/8 THEN  GO TO 3000
3405 IF C=10 THEN  GO TO 3500
3410 IF F=0 THEN  GO TO 3450
3420 POKE 23617,158: INPUT "START ADDRESS"; INVERSE 1;">"; INVERSE 0;V
3430 IF V<0 OR V>65535 THEN  GO TO 3420
3440 POKE 64013,V-256*INT (V/256): POKE 64014,INT (V/256)
3445 GO TO 3000
3450 POKE 23617,158: INPUT "AUTO START ("-" MEANS NONE)"; INVERSE 1;">"; INVERSE 0; LINE V$
3460 IF V$="-" THEN  LET V=32819: GO TO 3480
3465 IF V$="" OR LEN V$>4 THEN  GO TO 3450
3470 LET V=VAL V$
3480 POKE 64013,V-256*INT (V/256): POKE 64014,INT (V/256)
3490 GO TO 3000
3500 POKE 23617,158: INPUT "NEW PROG/VARS LENGTH"; INVERSE 1;">"; INVERSE 0;V
3510 IF V<1 OR V>9999 THEN  GO TO 3500
3520 POKE 64015,V-256*INT (V/256): POKE 64016,INT (V/256)
3530 GO TO 3000
8999 STOP
9000 DATA 221,33,0,250,17,17,0,175,55,195,86,5: REM LOAD DATA
9010 LET t=0: RESTORE 9000: FOR n=64100 TO 64111: READ a: LET t=t+a: POKE n,a: NEXT n
9020 IF t<>1054 THEN  CLS : PRINT AT 0,0;"ERROR IN LOAD DATA!": STOP
9030 DATA 221,33,0,250,17,17,0,175,195,194,4: REM SAVE DATA
9040 LET t=0: RESTORE 9030: FOR n=64200 TO 64210: READ a: LET t=t+a: POKE n,a: NEXT n
9050 IF t<>1106 THEN  CLS : PRINT AT 0,0;"ERROR IN SAVE DATA!": STOP
9060 GO TO 40
```

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Sembler

Robert Osborne

With the cold winter nights now upon us what could be nicer than warming your hands over a hot computer. Sembler will give you that opportunity with its combination of assembler and disassembler.

On running the program a prompt will be displayed. The three letter commands that are used are given below:

Ass – puts you into assembler mode

Dis – puts you into the disassembler mode

Let – waits for a string to be input. It then outputs the *Ascii* value of each character in hex and decimal

Cal – asks for number then calls the routine at that address

Hex – converts a decimal number to hex

Dec – converts a hex number to decimal

When the assembler routine is in use the start address can range from 9000 to 49152 (&C000). When entering data from mnemonics make sure that there is a space between the mnemonics and the numbers (which can be entered in decimal or hex). Press enter at the end of every line and to finish assembling press enter again.

The second and final part of the listing will be published next week.

```
10 DIM T$(6),MNE$(255),TYPE(255):FOR I=0
 TO 63:READ MNE$(I):NEXT I
20 FOR I=0 TO 7:READ T$(I):NEXT
30 WINDOW 1,40,1,25:INK 2,15
40 K=0:FOR I=64 TO 127 STEP 8
50 FOR J=I TO I+8
60 MNE$(J)="LD "+T$(K)+","+T$(J-I)
70 NEXT J:K=K+1:NEXT I
80 MNE$(118)="HALT"
90 FOR I=128 TO 191 STEP 8
100 READ A$:FOR J=0 TO 7
110 MNE$(I+J)=A$+T$(J)
120 NEXT J,I
130 FOR I=192 TO 255:READ MNE$(I):NEXT I
140 FOR I=1 TO 255
150 R$=RIGHT$(MNE$(I),LEN(MNE$(I))-3)
160 IF R$="BC" OR R$="DE" OR R$="HL" OR
R$="SP" THEN TYPE(I)=2
170 R$=LEFT$(MNE$(I),2):IF R$="JP" OR R$
="CA" OR R$="RS" THEN TYPE(I)=2
180 NEXT I
190 TYPE(207)=0:PEN 3:CLS:PRINT TAB(15)"
Sembler V2.0"
200 PRINT TAB(12)"By Robert Osborne."
210 PRINT TAB(9)CHR$(164);" Unicorn Soft
ware 1986."
220 WINDOW 1,40,5,25:CLS
230 PEN 2:PRINT ">";:PEN 1:INPUT "",A$:A
$=UPPER$(LEFT$(A$,3))
240 PEN 2:IF A$="ASS" THEN 310
250 IF A$="LET" THEN PRINT "Letters>";:P
EN 1:INPUT "",A$:FOR I=1 TO LEN(A$):B$=M
ID$(A$,I,1):PRINT B$,ASC(B$),"&"+HEX$(AS
C(B$)):NEXT I:GOTO 230
260 IF A$="CAL" THEN PRINT "Call>";:PEN
1:INPUT "",A$:CALL VAL("&"+A$):GOTO 230
270 IF A$="HEX" THEN PRINT "Hex>";:PEN 1
:INPUT "",A:PRINT "&"+HEX$(A):GOTO 230
280 IF A$="DEC" THEN PRINT "Decimal>";:P
EN 1:INPUT "&",A$:PRINT VAL("&"+A$):GOTO
 230
290 IF A$="DIS" THEN GOTO 910
300 PRINT "Do what?":PRINT:GOTO 230
310 REM ASSEMBLER
320 PRINT:PRINT "Assembler"
330 PRINT "Start>";:PEN 1:INPUT "",A$
340 PRINT:A=VAL(A$)
350 IF A<0 THEN A=65536+A
360 IF A<9000 THEN PEN 2:PRINT "Too low"
:GOTO 330
370 IF A>49152 THEN PEN 2:PRINT "Too hig
h":GOTO 330
380 FOR P=A TO 43900
390 T=0:C1$="":C$="":B$=""
400 PEN 2:PRINT P;TAB(10)"&"HEX$(P);TAB(
20)
410 PEN 1:LINE INPUT "",A$:A$=UPPER$(A$)
420 IF VAL(A$)<>0 THEN POKE P,VAL(A$):GO
TO 740
430 IF A$="" THEN GOTO 230
440 FOR I=0 TO 255:IF A$=MNE$(I) OR A$+"
 "=MNE$(I) THEN POKE P,I:T=1:I=255
450 NEXT I
460 IF T=1 THEN GOTO 740
470 C$="":FOR I=1 TO LEN(A$)
480 IF C$="" AND MID$(A$,I,1)>"/" AND MI
D$(A$,I,1)<":" THEN C1$=C1$+MID$(A$,I,1)
:T=I
490 IF MID$(A$,I,1)="&" THEN C$=MID$(A$,
I,5):T=I+4
500 NEXT
510 IF C1$<>"" THEN C$="&"+HEX$(VAL(C1$)
)
520 X=T-LEN(C$):IF LEFT$(C$,1)<>"&" THEN
 C$="&"+HEX$(VAL(C$))
530 C$=RIGHT$(C$,LEN(C$)-1):IF LEN(C$)<5
 THEN FOR I=LEN(C$)-1 TO 5:C$="0"+C$:NEX
T I
540 D$=C$:B$=LEFT$(A$,X)+"A"+RIGHT$(A$,L
EN(A$)-T)
550 FOR I=63 TO 58:IF B$=MNE$(I) THEN GO
SUB 750
560 NEXT I
570 IF T=1 THEN GOTO 740
580 B$="":FOR I=1 TO LEN(A$)
590 IF MID$(A$,I,1)=" " OR MID$(A$,I,1)=
"," THEN I=200:GOTO 610
600 B$=B$+MID$(A$,I,1)
610 NEXT I
620 Y=0:FOR I=1 TO 255
630 IF B$=MNE$(I) AND TYPE(I)=2 OR B$+"
"=MNE$(I) AND TYPE(I)=2 THEN GOSUB 750
640 IF B$+" "=MNE$(I) THEN Y=I
650 IF B$=MNE$(I) THEN Y=I
660 NEXT I
670 IF T=1 THEN GOTO 740
680 IF Y=0 THEN PEN 2:PRINT "That is no
t an op-code.":END:GOTO 390
690 IF MID$(B$,1,2)="JR" OR MID$(B$,1,2)
="DJ" THEN C=VAL("&"+C$):GOTO 760
700 POKE P,Y
710 IF VAL("&"+C$)>255 THEN PEN 2:PRINT
"Can't be done.":GOTO 390
720 POKE P+1,VAL("&"+C$)
730 P=P+1
740 NEXT
750 POKE P,I:POKE P+1,VAL("&"+MID$(C$,LE
N(C$)-1,2)):POKE P+2,VAL("&"+MID$(C$,LEN
(C$)-3,2)):P=P+2:T=1:RETURN
760 IF P-128<C OR P+127>C THEN POKE P,Y
ELSE PEN 2:PRINT "Can't be done.":END:GO
TO 390
770 IF C<256 THEN POKE P,C:GOTO 800
780 IF C>P THEN POKE P+1,C-P
790 IF C<P THEN POKE P+1,256-(P-C)
800 P=P+1:GOTO 740
810 DATA NOP,LD BC,"LD (BC),A",INC BC,IN
C B,DEC B,LD B,RLCA,"EX AF,AF'","ADD HL,
BC","LD A,(BC)",DEC BC,INC C,DEC C,LD C,
RRCA
820 DATA DJNZ,LD DE,"LD (DE),A",INC DE,I
NC D,DEC D,LD D,RLA,"JR ","ADD HL,DE","L
D A,(DE)",DEC DE,INC E,DEC E,LD E,RRA
830 DATA JR NZ,LD HL,"LD (#),HL",INC HL,
INC H,DEC H,LD H,DAA,JR Z,"ADD HL,HL","L
D HL,(#)",DEC HL,INC L,DEC L,LD L,CPL
```

UFO – the final frontier

Steven Pattullo

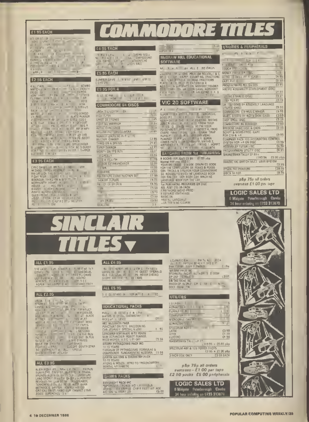
And now at long last, your chance to save the universe in UFO. When you are on the title screen press ! for further information.

All of the sprites are handled by an interrupt driven machine code routine located at in memory at 49152.

If you would like a copy of UFO on cassette then send £2 to Steven Pattullo, 34 Birchfield Road, Widnes, Cheshire WA8 7SU.

```
[illegible]
```

```
[illegible]
```



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Clock

R Thomas

These two routines for the Spectrum will set up a clock facility. Use *Gosub 9000* to first set the clock and thereafter *Gosub 9006* to print the time.

The lines can be renumbered and *Merged* into your own programs.

```
9000 REM setclock
9001 CLS : PRINT  INVERSE 1;" SET CLOCK",,: INPUT "HOURS ";H,"MINS ";M,"SECS ";S
9002 LET V=50*(H*3600+M*60+S): LET DP=(V-65536*INT (V/65536))
9003 POKE 23672 (DP-256*INT (DP/256)): POKE 23673,INT (DP/256): POKE 23674,
INT (V/65536)
9004 RETURN
9005
9006 REM time
9007 LET T=PEEK 23672+256*PEEK 23673+65536*PEEK 23674:
9008 LET T=T/50: LET HR=INT (T/3600): LET MIN=INT ((T-HR*3600)/60): LET SEC=INT
(T-HR*3600-MIN*60)
9009 PRINT AT 1,23;HR;":";MIN;":";SEC,
9010 RETURN
```



Variables

R Thomas

This subroutine for the Spectrum lists all the variables currently in use. To use effectively the routine *Merge* it with your Basic program and then enter *Goto 9705*

```
9705 LET VARS=PEEK 23627+256*PEE
K 23628:FOR I=VARSTO 65535:LET B
YTE=PEEK I:IF BYTE=128THEN PRINT
 "END OF VARIABLES.":STOP
9706 IF BYTE(=90 THEN  PRINT CHR
$ (BYTE-64+96);"$": LET I=I+(PEE
K (I+1)+256*PEEK (I+2)+2): NEXT
I
9707 IF BYTE(=122 THEN  PRINT CH
R$ (BYTE): LET I=I+5: NEXT I
9708 IF BYTE(=154 THEN  PRINT CH
R$ (BYTE-128+96)."()". LET I=I+(
PEEK (I+1)+256*PEEK (I+2)+2): NE
XT I
9709 IF BYTE(=186 THEN  PRINT CH
R$ (BYTE-160+96);: GO SUB 9712:
LET I=J+5: NEXT I
9710 IF BYTE(=218 THEN  PRINT CH
R$ (BYTE-192+96)."$()": LET I=I+
(PEEK (I+1)+256*PEEK (I+2)+2): N
EXT I
9711 PRINT "FOR ";CHR$ (BYTE-224
+96): LET I=I+18: NEXT I
9712 FOR J=I+1 TO I+100: LET SBY
TE=PEEK J: IF SBYTE>=129 THEN  L
ET SBYTE=SBYTE-128: PRINT CHR$ S
BYTE: RETURN
9713 PRINT CHR$ SBYTE;: NEXT J
```

Multi Colour Pause

Michael Davies

This routine for the Vic 20 creates a multicolour border around the Vic screen while waiting for a key to be pressed. Applications include for use on title pages etc. The routine is called from within the program using a *Sys 828* command.

Lines 1 to 4 contain the machine code; lines 5 to 7 merely show what is possible.

```
1 DATA173,15,144,133,99,41,248,133,100,166,100,
142,15,144,162,3,160,23,136,208,2 53
2 DATA202,208,249,165,197,201,64,208,14
,174,15 144,138,229,100,201,7,240,225
3 DATA232,76,71,3,165,97,141,15,144,76
4 C=0:FORA=828TO877:READB:POKEA,B:C=C+B:
NEXT:IFC<>6620THENPRINT"ERROR":STOP
5 POKE36865,60:POKE36867,142:POKE36879,8
6 PRINT"       COLOURFUL BORDER        (C)
12 JULY 1986          BY  M.J.DAVIES":POK E198,1
7 SYS828:POKE198,0:POKE36865,39:POKE36867
 174:PRINT"  ":POKE36879,27
```

We want your programs!!

Yes, this is your chance to get rich and famous. Well, famous anyway, as *Popular Computing Weekly* is looking for contributions to the Programming pages.

What sort of thing are we looking for? You name it – anything original from games to utilities, applications and the like, written in Basic, machine code or anything else you can think of.

Programs for any computer will be considered, not just the old faithfuls (Spectrum, Amstrad, QL, Commodore, etc) so send those listings in. What we need is a working copy of the program on tape or disc, plus an accompanying article or documentation that you would anticipate going with the piece, normally not over *2000* words.

Alternatively, send in your short programs to the Bytes and Pieces page – what could be easier?

In return we'll pay the princely sum of £25/page for the main programming pages and £5 for each Bytes & Pieces contribution we publish. Plus the fact that your name will be indelibly carved in the *Popular* Programming Hall of Fame till time immemorial. What more could any true programmer ask for?

Just send your masterpieces in to **Duncan Evans, Technical Editor, Popular Computing Weekly, 12–13 Little Newport St, London WC2 7PP** and he'll assess them post haste.

With Kenn Garroch

Random queries

Alun Hyde of Nuneaton Leicestershire writes

Q I am currently writing a computer game that requires random movements and I would like to know how to generate random numbers

A Computers being what they are cannot generally generate truly random numbers The closest they can get is so-called pseudo random sequences These are sets of numbers that are only random for a certain period after which they repeat A simple way of creating these is as follows

1) take an 8-bit number

2) look at bits 2 and 7 and exclusive or their values

3) rotate the 8-bit value left (times two) and stick the result of the XOR in as the new first bit

Take 01001001 bits 2 and 7 are 0 and 1 The exclusive OR of these is 1 so the original times two is 10010010 and with the new first bit is 1 so the result is 10010011 Continually doing this will give a pseudo binary random sequence A simple machine code program to do this in 6502 is shown below RNUM is the starting number or seed watch out for values such as 0 or 128 which won t work If you need a longer sequence use two or more bytes in and take the 15th or greater bit

```
RNUM    BYTE $A5
RAND    LDA #2
        BIT RNUM
        BNF B2SET
        LDA #64
        BIT RNUM
        BNE B7SET
        CLC
        ROL RNUM
        RTS
B2SET   LDA #64
        BIT RNUM
        BNE B27SET
        SEC
        ROL RNUM
        RTS
B7SET   SEC
        ROL RNUM
        RTS
B27SET  CLC
        ROL RNUM
        RTS
```

The disc drive dilemma

T Johnstone of Wellingborough Northamptonshire writes

Q I have had my BBC Micro for some time now and have finally decided that it is worth upgrading to a disc system What I would like to know is if there are any advantages in going for a $3\frac{1}{2}$ inch drive rather than the more normal $5\frac{1}{4}$ inch system

A As far as storage capacity goes there is little difference between the two standards The $3\frac{1}{2}$ inch diskettes have the advantage that they are a lot more durable than their $5\frac{1}{4}$ inch counterparts You can throw them around the room (if you feel the urge) without damaging them and they are small enough to fit into a top pocket

$5\frac{1}{4}$ inch discs are not as tough but they are a lot more standard for the BBC Almost all of the commercial software available for the machine comes on $5\frac{1}{4}$ inch discs and they cost about half the price of blanks So unless you are not going to purchase software, you are far better off going for a $5\frac{1}{4}$ inch disc drive than the more modern and compact $3\frac{1}{2}$ inch

Fractal graphics for the CPC

J Adamson of York Yorkshire, writes

Q I am a relative newcomer to computers having used one at work, and recently bought an Amstrad CPC 6128 I have seen the word Fractal mentioned in the computer press quite frequently My question is, what is one of these and what are they used for?

A A Fractal is the mathematical concept of an object having fractional dimensions For instance, a line connecting two points has one dimension a set of lines side by side in a plane have two dimensions three dimensions is obtained by stacking a set of planes on top of each other to form a solid

Alternatively rotate the line around its center and it describes a plane, rotating the plane at right angles to its other two dimensions describes a solid

Normal mathematical geometry treats dimensions as being continuous so a length is measured as having a specific size and it describes the thing as a whole

Fractal geometry treats things in a different way by describing the dimension or shape in terms of how closely it is examined For example, take a map of an island and examine the coast As you get closer and closer the coast becomes more detailed If you then take a larger scale map of the same area, the detail increases

Taking this to its extreme you could go to the place itself and look at the detail which is still as complex and can be said to have a fractional dimension since it is never absolutely defined

The same idea can be applied via some mathematical formulas such as the famous Mandelbrot set no matter how closely you look or in the case of a formula evaluate it there is always more detail to be revealed An example is the square root of 2 or the value of π If you extract the square root of 2 no matter how many times you work it out you will be able to add more decimal places effectively describing the value in more and more detail

The same method can be applied to a formula that describes the shape of an object the more you evaluate certain portions the more detail will be revealed Just like drawing a map in more and more detail but without ever running into problems with the resolution of the paper

As for uses Fractals can be used to produce pretty patterns or they could be used in a computer game to allow zoom in effects This cuts down the amount of data that needs to be stored about an object all that is needed is the formula which needs to be evaluated a specific number of times to get the required detail

Other than that Fractals are to a certain extent nothing more than a mathematical curiosity arising from the fact that computers can perform the many calculations necessary to produce them

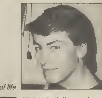
Because of this last aspect they are frequently used to demonstrate the speed of a computer To produce a section of the Mandelbrot set can take a day or so with a normal home micro but on something like a transputer the same thing can be done in seconds

For additional and more indepth information on this subject the following will provide it

Musical Fractals *Byte* June 1986
Personal Computer World December 1986
The Fractional Geometry of Nature by B B Mandelbrot W H Freeman
Advanced Graphics with the Commodore 128 Macmillan

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can The address is *Peek & Poke, PCW,* 12-13 Little Newport Street, London WC2H 3LD

Trading on adventure



David Wallin takes a techno-fresh view on the game of life

On the Bulletin boards scene I ve been asked to mention one which although not new is worth a look at

Techno Fresh Systems is about a year old and based in Wales It has all the usual features of telesoftware messaging Sigs etc and has just recently started two on-line games One is a simple higher/lower gambling game (no real money involved – apart from your phone bill!) the other is called *Hammurabi – Game of Life* a trading game

Techno Fresh is planning to implement an on line adventure once it has made some extensive software modifications to the board The adventure will be called *Southpool Seaside Adventure* and is being written by co sysop Keith Anderson

BBC owners will receive all the Techno Fresh menus in mode 7 colour – this is not viewdata but BNI protocol 40 columns scrolling colour graphics and text The character set is roughly the same as viewdata s

Users may write and upload articles and reviews for publication on the board and sysop Llew Dickinson says that he is willing to help prospective sysops and give advice if need be

> *"Techno Fresh is planning to implement an on-line adventure by co-sysop Keith Anderson"*

Techno Fresh is on 0570 423082 24 hours on 300/300 baud If you want 1200/75 ring 0670 922501 to ask for it verbally

Marctel run by Marcus Anselm is also known as FBBS HQ as it was Marcus who wrote FBBS for the BBC Following a *Popular* Communications column on FBBS William Holmes then attempted to set up Q Board using FBBS with Le Modem and disaster followed disaster My faith in FBBS dropped rapidly but I now hear that having got hold of a Demon modem William is on-line (as Musictel Plus 0843 590000) and there are far fewer problems So if you want to set up a board using FBBS we re now recommending the Demon modem

A Rom version of the main machine code of FBBS is now available as well as a disc version For more details contact Marcus Anselm at Marctel on 01 346 7150 1200/75 and 300/300 (24 hours)

Neal Birkett has written to me to ask which modem to use for linking his Commodore Amiga to Prestel and other boards He has been advised to get either a WS2000 or a Nightingale My personal choice would be the WS2000 but Neal if you can afford an Amiga you can probably also afford a Series 4 modem from Pace Micro Technology (ranging from £150–£620) or a WS3000/WS4000 from Miracle Technology Anyone who has the means to buy a modem at over £150 would be well advised to get an intelligent modem Hayes compatible if possible (the WS3000 and 4000 and the Series 4 are all Hayes modems)

Pace can be reached at Allerton Road Bradford BD15 7AG (0274 488211) and Miracle Technology on 0473 2161

Varying shades of MUD

You may remember that in *Popular*, August 21, we looked at *Gods and Shades* two independent multi-user on-line adventures *Shades* has now been taken over by Micronet 800 and has been up and running on Micronet for the last couple of weeks

Shades is very similar to *MUD* in plot You adopt a chosen persona, and starting as a novice, travel through a series of caves to reach the enchanted land of Shades

There you ll be called upon to negotiate moated castles a ruined city complete with explorable sewers below among many locations Your objective as in *MUD* is to find and collect as much treasure as possible and deposit it to the mad king s room

All along the way you can interact with the other players, amicably or otherwise As in *MUD*, the wizards have powers beyond those of ordinary players and can make life difficult for you if they so wish You ll also need to look out for computer-generated nasties rats robots and so on Encounters with these can prove fatal

Shades can be found on Micronet 800 page *8118# It costs 97 pence per hour to play and is open 24 hours a day Up to 64 people can play simultaneously, so you should be able to log on OK The game is reset every hour, so that the treasure doesn t all end up in the mad king s room too quickly

Details of how to subscribe to Micronet can be obtained on 01 278 3143



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Cheetah's cheaper

Mark Jenkins with a new Midi keyboard and products for the Spectrum and BBC

Cheetah Marketing continues to amaze the combined worlds of micros and music with the latest in a long line of products following on from their successful SpecDrum and AmDrum

Now Cheetah has launched the MK5 a controller keyboard intended for use with any Midi product The MK5 is equally suited to playing a micro based sampler controlling a synth or programming notes into a micro-controlled Midi sequencer system

The keyboard has five octaves of full sized keys and has a firm pleasant action combined with tough all metal construction The hardware is manufactured in Italy and is completed by a three-figure LED display sideways-mounted sprung pitch bend wheel play/program button and four small LEDs

Connections are very simple – a Midi Out socket and an input for the external 9V power supply which is included in the package The keyboard isn't velocity sensitive and lacks a modulation wheel, facts which will lose you a few facilities on even the cheapest synthesisers but a fully featured velocity sensitive control keyboard with the same full sized keys would cost at least three times more than the Cheetah

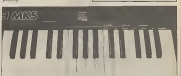
Several additional control functions are carried out by the Cheetah's top octave of keys when you switch over into *Program* mode Pushing the program/play button lights up the Program LED and you then have a choice of increasing or decreasing the Midi transmission channel (1–16) the octave of the whole keyboard (1 0 –1) or the program number transmitted (1–128) with different pairs of keys If you want to actually carry out a patch change on any connected synthesiser you then have to hit the key marked *Transmit*, and go back to *Play* mode before carrying on

Incidentally any keys held when you go into *Program* mode will continue to sound so this button acts as a sort of *Hold* function although it would be better to have this function also available on a footswitch (it should be pretty easy to connect a footswitch across the play/program button but it'll invalidate your 12 month guarantee)

The handbook suggests several possible uses for the MK5 – playing Midi synths or modules programming Midi sequencers or computers via a Midi Interface (or directly in the case of the Midi-equipped Atari 520) The alternative application is in playing the sound chip of an Amstrad or Spectrum 128k or Plus 2 via the optional mini-interface (£29 95) and software package The interface box has a Midi In lead from the keyboard an edge connector for the computer and software which can be transferred to microdrive if you wish

The Mini Interface software lets you edit and play sounds on the AY 3 8910 sound chip using the MK5 and a sophisticated system of windows and menus controls all the functions 64 sound patches can be stored in the Spectrum's memory simultaneously three voices can be played at once and an optional split point can be set two octaves from the bottom of the keyboard The software allows you to define a seven stage volume envelope a pitch envelope repeat delay/rate noise mix tremelo speed/depth/delay and pitch bend wheel on/off Sound settings can be saved to tape or microdrive

If you have a Spectrum starting with the Mini interface and software is a good idea and will give you a reasonable idea of what could be done with a more advanced synthesiser When you do want to move up the Korg EX800 Expander is a useful keyboardless six note polyphonic synth module with a simple built-in sequencer while the Casio CZ 101 will offer eight note chords or four different monophonic sounds simultaneously under the control of a hardware or software sequencer package



What you're lacking on the Cheetah – velocity sensitivity modulation and fast program changes – is more than made up for by the cheapness of the keyboard and the fact that it gives five octaves (expandable to seven with the octave switching) of Midi control over synths which may have four octave of miniature keys or no keys at all

On to the BBC Micro existing owners will be pleased to learn that there's a new version of the best BBC Midi interface the UMI 2B from Soft Rock Systems It's called the UMI 3B and is a cut down version of the 2B with one Midi In and two Midi Out sockets Clock or Sync In and Out Sync 24 Out for Roland-type drum machines Start Stop socket and built in software

The new software which is updatable includes on screen help pages and the 3B is priced at £195 (plus Vat) There's also a new software revision for the existing UMI-2B with over 30 updates filling two Roms More information from the addresses given below

U Music Ltd 17 Parkfields London SW15 6NH
Cheetah Marketing 1 Willowbrook Science Park Crickhowell Road St Mellons Cardiff Tel 0222 777337

If you have any queries or tips for this column please write to Mark Jenkins at **Popular Computing Weekly,** 12–13 Little Newport Street London WC2H 7PP Mark would also welcome examples of your own music on audio or program tape or disc

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New Releases

Amstrad CPC

Program *Rebelstar* **Type** Strategy **Price** £1 99 **Supplier** Firebird Software 64–76 New Oxford Street London WC1A 1PS

Budget strategy as the rebels storm the barricades Ideologically sound strategy game that s well worth the investment

Program *Sport of Kings* **Type** Arcade **Price** £2 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *Starglider* **Type** Arcade **Price** £14 95 (tape) £19 95 (disc) **Supplier** Rainbird Software 74 New Oxford Street London WC1A 1PS

Amstrad version of the ST classic, and contract programmers Realtime just about pull it off Obviously not as colourful or as fast as the original but still retains much of the excitement

Program *Tarzan* **Type** Arcade Adventure **Price** £9 95 (tape) £14 95 (disc) **Supplier** Martech Mertech House Bay Terrace Pevensey Bay, East Sussex BN24 6EE

Program *Ace* **Type** Arcade/Simulation **Price** £9 95 (tape) £14 95 (disc) **Supplier** Cascade Games Harrogate North Yorkshire

Program *Bobby Bearing* **Type** Arcade/Strategy **Price** £8 95 (tape) £14 95 (disc) **Supplier** The Edge 36/38 Southampton Street London WC2E 7HE

Excellent conversion of the Spectrum game that will either have you hooked with its puzzles and cuteness – or leave you stone dead

Program *Rogue Trooper* **Type** Arcade **Price** £9 95 **Supplier** Piranha 4 Little Essex Street London WC2R 3LF

Program *Battlefield Germany* **Type** Strategy **Price** £12 95 (tape) £17 95 (disc) **Supplier** PSS 452 Stoney Stanton Street Coventry CV6 5DG

Program *Murder off Miami* **Type** Adventure **Price** £7 95 **Supplier** CRL 9 Kings Yard Carpenters Road London E15 2HD

Program *Trivial Pursuit – Young Players Edition* **Type** Quiz **Price** £14 95 (complete) £7 95 (questions only) **Supplier** Domark 24 Worple Road London SW20 8PN

New questions for younger players – available as a new data set if you already have the original game Baby Boomer and Genus II editions already in the planning stage

Atari XL/XE

Program *Caverns of Eriban* **Type** Arcade **Price** £1 99 **Supplier** Firebird Software, 64–76 New Oxford Street London WC1A 1PS

Not the most original of concepts as messing around in caverns has been has long been an arcade cliche but well enough done

Program *Masterchess* **Type** Strategy **Price** £1 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *Back to Reality* **Type** Arcade **Price** £1 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *Silicon Dreams* **Type** Adventure Compilation **Price** £14 95 (tape or disc) **Supplier** Rainbird Software 74 New Oxford Street London WC1A 1PS

Level 9 s Snowball trilogy repackaged and reprogrammed and re-released Good value introduction to quality adventuring

Program *Trivial Pursuit* **Type** Quiz Game **Price** £14 95 (tape) £19 95 (disc) **Supplier** Domark 24 Worple Road London SW20 8PN

Pick of the week

PCW Pursuit

Program *Trivial Pursuit* **Type** Board game **Price** £19 95 PCW8256/8512 **Supplier** Domark 24 Worple Road, London SW20 8PN

Having surprised almost everyone by the quality of Trivial Pursuit s conversion to home micros Oxford Digital Enterprises and Domark have squared up to the next challenge – translating it to black and green only

As with so many PCW implementations the screen resolution makes for wonderfully detailed pictures needed here to distinguish between the six different question subjects In some ways it hasn t quite come off – you ll need to know the game very well before you can automatically distinguish which pattern relates to which subject

None of the enjoyable elements of the game have been left out on the PCW – TP still throws the dart taps his foot and puts in a word or two of encouragement It also has the dreaded music questions sending the victim into a huddle at the back of the monitor straining to catch the gist of what sounds like a long bag pipe with a hole in it

Atari ST

Program *The Wanderer* **Type** Graphic adventure **Price** £24 95 **Supplier** Pyramide via Reo Promotions 28 Waverley Grove London N3 3PX

ST version of well-received graphic adventure Said to be going down well in the States so file it under illegal arms sales Swiss bank accounts and impeachment rumors

BBC/Electron

Program *Elite* **Type** Arcade/Strategy **Price** £12 95 (tape) £14 95 (disc) **Supplier** Superior Software Regent House Skinner Lane Leeds LS7 1AX

Memories are made of this *Elite* the first game I fell in love with (after *Defender*) has now been re released at a slightly cheaper price also appearing for the first time on $3\frac{1}{2}$ inch format for the Master Compact

Collectors of computer trivia will be interested to learn that the game gained the highest market penetration ever achieved on a home micro – well over 50% of end users actually forked out the bananas and bought the thing the rest left milk crackers and a blank disc by the kitchen door on the night of a full moon and in the morning lo and behold the pixies had done their work

More Interesting facts The game made Braben and Bell so much money that they decided to stop programming and concentrate on spending it Hence *Elite II* is not likely to be winging its way to us until the baroomba runs out Too bad

Back to *Elite* itself the new BBC disc has three versions

on it – the standard game a 6502 Second Processor version (runs faster plus more colour if I remember correctly) and a Master 128/Turbo version Possibly worth getting if you have the appropriate kit but the question is if all the BBC games players have a copy of *Elite* – and believe me they have – who the hell is going to buy it now?

C16/Plus 4

Program *Spiky Harold* **Type** Arcade **Price** £1 99 **Supplier** Firebird Software 64–76 New Oxford Street London WC1A 1PS

Program *Magician's Curse* **Type** Arcade Adventure **price** £6 95 **Supplier** Gremlin Graphics Alpha House 10 Carver Street Sheffield S1 4FS

The 48 full-colour screens of this quest for the seven talismen is fair enough but emphasises that the C16 only comes into it's own when running a fast basic shoot em up

Program *Fighting Warrior* **Type** Arcade **Price** £5 95 **Supplier** Melbourne House 60 High Street Hampton Wick Kingston Upon Thames Surrey

CBM 64

Program *Twinky goes Hiking* **Type** Arcade **Price** £1 99 **Supplier** Firebird 64–76 New Oxford Street London WC1A 1PS

Mr Men-style characters racing each other over a variety of landscapes for the affections of a Ms Woman The game is as bad as the plot line

Program *43 – One Year After* **Type** Arcade **Price** £9 95 (tape) £14 95 (disc) **Supplier** American Action AB PO Box 10090 200 43 Malmo Sweden

Contender for the most side splitting arcade clone this year *43 – One Year After* One year after you got it – *1942* although by the standard of design and programming, you might be forgiven for thinking it's 1842

Program *Conquest* **Type** Arcade **Price** £2 99 **Supplier** Mastertronic 8–10 Paul Street London EC2

Program *Avenger – Way of the Tiger II* **Type** Arcade Adventure **Price** £9 95 (tape) £14 94 (disc) **Supplier** Gremlin graphics Alpha house 10 Carver Street Sheffield S1 4FS

Slightly misleading in that it doesn't look anything like the original game – the plot continues on from *Tiger 1* as you attempt to avenge the death of your foster father Naijishi Try saying that after twelve pints of lager

Program *Lightforce* **Type** Arcade **Price** £8 95 **Supplier** Faster Than Light Sedgley Road East Tipton West Midlands DY4 7UJ

Makes less of an impact on the 64 mainly because the standard of shoot em ups is higher on the thing but it's still high class auto-fire action from FTL

Program *Tarzan* **Type** Arcade Adventure **Price** £9 95 (tape) £12 95 (disc) **Supplier** Martech Martech House Bay Terrace Pevensey Bay East Sussex BN24 6EE

Program *Arctic Fox* **Type** Arcade/Strategy **Price** £14 94 (disc) £9 95 (tape – available from 15th Dec) **Supplier** Anolasoft 65 Long Acre Covent Garden, London WC2E 9JH

Commodore 64 version of Battlezone plus strategy game originally custom programmed for the Amiga It's you and your tank vs the aliens – odds on it's not going to be a draw either

Program *Tracker* **Type** Arcade/Strategy **Price** £14 95 (tape) £17 95 (disc) **Supplier** Rainbird 74 New Oxford Street London WC1A 1PS

Rainbird's first wargame has a nice plot (computer taking over entertainment complex) reasonable implementation and possibly one of the worst novellas ever to accompany a computer program Full review next week

Program *Breakthru* **Type** Arcade **Price** £9 99 (tape) £14 99 (disc) **Supplier** US Gold Unit 2/3 Holford Way Holford Industrial Estate Birmingham B6 7AX

Coin op licence Manoeuvre your armoured car over various terrains – zap everything that gets in your way Furious action for would-be traffic offenders

Program *Bobby Bearing* **Type** Arcade/Strategy **Price** £8 95 (tape) £12 95 (disc) **Supplier** The Edge 36/38 Southampton Street London WC2E 7HE

Program *Xeno* **Type** Arcade **Price** £7 95 **Supplier** A&F Argus Press Software Victory House Leicester Place London WC2H 7NB

Penny Football on a computer I tell them – but it doesn't stop this being fast furious fun Easily one of the best A&F releases in ages

Program *Judge Dredd* **Type** Arcade **Price** £9 95 (tape) £14 95 (disc) **Supplier** Melbourne House 60 High Street Hampton Wick Kingston Upon Thames Surrey KY1 4DB

Program *Warrior II* **Type** Arcade **Price** £9 95 (tape) £12 95 (disc) **Supplier** Nexus Productions DSB House 30 High Street Beckenham Kent BR2 0XW

To most intents and purposes a follow up to *Psi Warrior* – that Beyond oldie Nicely done by the team of Paul Voysay and Tayo Olowu

Program *Murder off Miami* **Type** Adventure **Price** £7 95 **Supplier** CRL 9 King Yard Carpenters Road London E15 2HD

Program *Defcom* **Type** Arcade **Price** £8 95 **Supplier** Quicksilva Argus Press Software Victory House Leicester Place London WC2H 7NB

Program *Trivial Pursuit – Young Players Version* **Type** Quiz **Price** £14 95 (or £7 95 as data set) **Supplier** Domark 24 Worple Road London SW20 8PN

PC Compatibles

Program *Jewels of Darkness* **Type** Graphic Adventures **Price** £19 95 **Supplier** Rainbird Software 74 New Oxford Street London WC2

Program *Trivial Pursuit* **Type** Quiz **Price** £19 95 **Supplier** Domark 24 Worple Road London SW20 8PN

Ziggurat

Basically, it's the best

It is now nearly five years since I was swept into the world of computing with what seemed at the time a complex mysterious machine namely a ZX81 On this little 1K wonder I learnt the fundamentals of programming That it was just a crude Basic I was programming in was immaterial the thing that counted was the fact that I was actually programming the machine Since that time things have come a long way

I now own a QL which I bought for a little under three times the price of the ZX81 That included a mono-monitor twin microdrives the free software and not forgetting the 128K memory eight colours hi res etc Of course QL SuperBasic is just that a super version of the old workhorse

Unlike languages like Pascal Fortran and Cobol which are defined under a set standard Basic can be modified to the manufacturer s wishes as long as the bare bones structure is kept One could design a Basic which looked so much like say Pascal that to use it as a normal Basic would be a vast under use This would be like using BBC or QL Basic without touching procedures or functions

"One could design a Basic which looked so much like, say, Pascal, that to use it as a normal Basic would be a vast under-use"

The reason I m going on about Basic so much is that there is so much more that could be done to improve it With each radical new micro launched a new dialect will be introduced which will, in most cases, supersede the version that went before

However the more complex the Basic the slower it will run The answer to faster Basic is a) run it on a machine with a faster processor, or b) to compile it Combining these two should provide a very fast flexible and (relatively) easy to use language

As it is most machines come with a built in interpreted Basic and because it is so it is slower than its compiled counterpart It would be nice if manufacturers provided machines with a good screen editor and a built in compiler on Rom With huge memories now becoming the norm programs could be written compiled into memory and run from memory without using any backup medium until a programming session was complete

Fortran programmers may be used to accessing huge libraries of routines from within a program to perform special operations A compiled Basic could for example make calls to procedures not resident in memory but on hard, floppy or Ram disc Thus a user could incorporate the same routines in different programs without having to copy them into the source file

A sufficiently powerful Basic would not be looked down on as a language where one gains bad habits in fact even the most basic Basic allows for some modicum of structure with judicious use of *Gotos* and *Gosubs*

I have reached a level where using a Pascal screen editor I am able to dispense with line numbers completely This has the advantage of being able to rearrange the order of the procedures and functions, search for variable names etc Of course I can t run the program until I load it into the computer (which automatically prefixes line numbers) but a well organised program shouldn t need too much editing

It seems strange after using a ZX81 to see something as expensive and powerful as say an Amiga and find it still using a Basic which is essentially the same as old ZX Basic

At least I can be sure that the language people love to hate will be around for some time to come

Steven Gray

NEXT WEEK

Hardware

Not content with attacking the top end of the micro market with the STs Atari is one of the companies predicting the resurgence of the cheap games consoles

We take a long hard look at Atari s update to its range the 7800 machine

Karate Kid II

Marvel at the detailed, life like graphics in our full colour review of Micro deal's latest

Arcade Action

Anyone stuck in Piranha's fiendish *Strike Force Cobra?* Extricate yourself with the help of Tony Kendle s hints and tips

Chess Board

Colossus author Martin Bryant brings you all the latest from the world of computer chess

CPC Assembler

Don t miss the second part of Robert Osborne s assembler/disassembler for the Amstrad CPCs

Hackers



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